

# SEQUENCE LISTING

<110> McCarthy, Sean A  
Fraser, Christopher C  
Sharp, John D  
Barnes, Thomas M

<120> NOVEL GENES ENCODING PROTEINS HAVING DIAGNOSTIC,  
PREVENTIVE, THERAPEUTIC, AND OTHER USES

<130> 10147-6

<140> Not Yet Assigned

<141> 1999-06-14

<160> 79

<170> PatentIn Ver. 2.0

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<212> DNA

<213> Homo sapiens

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Gln His Pro Tyr Asn Thr Leu Lys Tyr Pro Asn Gly Glu Gly Gly Leu  
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Gly Glu His Asn Tyr Cys Arg Asn Pro Asp Gly Asp Val Ser Pro Trp  
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Cys Tyr Val Ala Glu His Glu Asp Gly Val Tyr Trp Lys Tyr Cys Glu  
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Ile Pro Ala Cys Gln Met Pro Gly Asn Leu Gly Cys Tyr Lys Asp His  
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Gly Asn Pro Pro Pro Leu Thr Gly Thr Ser Lys Thr Ser Asn Lys Leu  
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Thr Ile Gln Thr Cys Ile Ser Phe Cys Arg Ser Gln Arg Phe Lys Phe  
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Ala Gly Met Glu Ser Gly Tyr Ala Cys Phe Cys Gly Asn Asn Pro Asp  
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Tyr Trp Lys Tyr Gly Glu Ala Ala Ser Thr Glu Cys Asn Ser Val Cys  
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Phe Gly Asp His Thr Gln Pro Cys Gly Gly Asp Gly Arg Ile Ile Leu  
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Phe Asp Thr Leu Val Gly Ala Cys Gly Gly Asn Tyr Ser Ala Met Ser  
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Ser Val Val Tyr Ser Pro Asp Phe Pro Asp Thr Tyr Ala Thr Gly Arg  
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Val Cys Tyr Trp Thr Ile Arg Val Pro Gly Ala Ser His Ile His Phe  
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Ser Phe Pro Leu Phe Asp Ile Arg Asp Ser Ala Asp Met Val Glu Leu  
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Leu Asp Gly Tyr Thr His Arg Val Leu Ala Arg Phe His Gly Arg Ser  
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Arg Pro Pro Leu Ser Phe Asn Val Ser Leu Asp Phe Val Ile Leu Tyr  
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Phe Phe Ser Asp Arg Ile Asn Gln Ala Gln Gly Phe Ala Val Leu Tyr  
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Gln Ala Val Lys Glu Glu Leu Pro Gln Glu Arg Pro Ala Val Asn Gln  
 325 330 335

Thr Val Ala Glu Val Ile Thr Glu Gln Ala Asn Leu Ser Val Ser Ala  
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Ala Arg Ser Ser Lys Val Leu Tyr Val Ile Thr Thr Ser Pro Ser His  
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Pro Pro Gln Thr Val Pro Gly Ser Asn Ser Trp Ala Pro Pro Met Gly  
 370 375 380

Ala Gly Ser His Arg Val Glu Gly Trp Thr Val Tyr Gly Leu Ala Thr  
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Leu Leu Ile Leu Thr Val Thr Ala Ile Val Ala Lys Ile Leu Leu His  
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Val Thr Phe Lys Ser His Arg Val Pro Ala Ser Gly Asp Leu Arg Asp  
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Cys His Gln Pro Gly Thr Ser Gly Glu Ile Trp Ser Ile Phe Tyr Lys  
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Tyr Asn Thr Leu Lys Tyr Pro Asn Gly Glu Gly Gly Leu Gly Glu His  
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Asn Tyr Cys Arg Asn Pro Asp Gly Asp Val Ser Pro Trp Cys Tyr Val  
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Ala Glu His Glu Asp Gly Val Tyr Trp Lys Tyr Cys Glu Ile Pro Ala  
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Cys Gln Met Pro Gly Asn Leu Gly Cys Tyr Lys Asp His Gly Asn Pro  
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Pro Pro Leu Thr Gly Thr Ser Lys Thr Ser Asn Lys Leu Thr Ile Gln  
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Thr Cys Ile Ser Phe Cys Arg Ser Gln Arg Phe Lys Phe Ala Gly Met  
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Glu Ser Gly Tyr Ala Cys Phe Cys Gly Asn Asn Pro Asp Tyr Trp Lys  
 145 150 155 160

Tyr Gly Glu Ala Ala Ser Thr Glu Cys Asn Ser Val Cys Phe Gly Asp  
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His Thr Gln Pro Cys Gly Gly Asp Gly Arg Ile Ile Leu Phe Asp Thr  
 180 185 190

Leu Val Gly Ala Cys Gly Gly Asn Tyr Ser Ala Met Ser Ser Val Val  
 195 200 205

Tyr Ser Pro Asp Phe Pro Asp Thr Tyr Ala Thr Gly Arg Val Cys Tyr  
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Trp Thr Ile Arg Val Pro Gly Ala Ser His Ile His Phe Ser Phe Pro  
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Leu Phe Asp Ile Arg Asp Ser Ala Asp Met Val Glu Leu Leu Asp Gly  
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Tyr Thr His Arg Val Leu Ala Arg Phe His Gly Arg Ser Arg Pro Pro  
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Leu Ser Phe Asn Val Ser Leu Asp Phe Val Ile Leu Tyr Phe Phe Ser  
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Asp Arg Ile Asn Gln Ala Gln Gly Phe Ala Val Leu Tyr Gln Ala Val  
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Lys Glu Glu Leu Pro Gln Glu Arg Pro Ala Val Asn Gln Thr Val Ala  
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Glu Val Ile Thr Glu Gln Ala Asn Leu Ser Val Ser Ala Ala Arg Ser  
 325 330 335

Ser Lys Val Leu Tyr Val Ile Thr Thr Ser Pro Ser His Pro Pro Gln  
 340 345 350

Thr Val Pro Gly Ser Asn Ser Trp Ala Pro Pro Met Gly Ala Gly Ser  
 355 360 365

His Arg Val Glu Gly Trp Thr Val Tyr Gly Leu Ala Thr Leu Leu Ile  
 370 375 380

Leu Thr Val Thr Ala Ile Val Ala Lys Ile Leu Leu His Val Thr Phe  
 385 390 395 400

Lys Ser His Arg Val Pro Ala Ser Gly Asp Leu Arg Asp Cys His Gln  
 405 410 415

Pro Gly Thr Ser Gly Glu Ile Trp Ser Ile Phe Tyr Lys Pro Ser Thr  
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Asp Arg Asn Pro Leu Val Ser Asp  
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Trp Thr Ile Arg Val Pro Gly Ala Ser His Ile His Phe Ser Phe Pro  
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Leu Phe Asp Ile Arg Asp Ser Ala Asp Met Val Glu Leu Leu Asp Gly  
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Tyr Thr His Arg Val Leu Ala Arg Phe His Gly Arg Ser Arg Pro Pro  
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Leu Ser Phe Asn Val Ser Leu Asp Phe Val Ile Leu Tyr Phe Phe Ser  
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Asp Arg Ile Asn Gln Ala Gln Gly Phe Ala Val Leu Tyr Gln Ala Val  
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Lys Glu Glu Leu Pro Gln Glu Arg Pro Ala Val Asn Gln Thr Val Ala  
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Glu Val Ile Thr Glu Gln Ala Asn Leu Ser Val Ser Ala Ala Arg Ser  
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Ser Lys Val Leu Tyr Val Ile Thr Thr Ser Pro Ser His Pro Pro Gln  
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His Arg Val Glu Gly  
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<212> PRT

<213> Homo sapiens

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<213> Homo sapiens

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<212> DNA

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<211> 4359

<212> DNA

<213> Homo sapiens

<400> 10

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<210> 11

<211> 1453

<212> PRT

<213> Homo sapiens

<400> 11

Met Met Leu Pro Gln Asn Ser Trp His Ile Asp Phe Gly Arg Cys Cys

1

5

10

15

Cys His Gln Asn Leu Phe Ser Ala Val Val Thr Cys Ile Leu Leu Leu

20

25

30

Asn Ser Cys Phe Leu Ile Ser Ser Phe Asn Gly Thr Asp Leu Glu Leu  
 35 40 45

Arg Leu Val Asn Gly Asp Gly Pro Cys Ser Gly Thr Val Glu Val Lys  
 50 55 60

Phe Gln Gly Gln Trp Gly Thr Val Cys Asp Asp Gly Trp Asn Thr Thr  
 65 70 75 80

Ala Ser Thr Val Val Cys Lys Gln Leu Gly Cys Pro Phe Ser Phe Ala  
 85 90 95

Met Phe Arg Phe Gly Gln Ala Val Thr Arg His Gly Lys Ile Trp Leu  
 100 105 110

Asp Asp Val Ser Cys Tyr Gly Asn Glu Ser Ala Leu Trp Glu Cys Gln  
 115 120 125

His Arg Glu Trp Gly Ser His Asn Cys Tyr His Gly Glu Asp Val Gly  
 130 135 140

Val Asn Cys Tyr Gly Glu Ala Asn Leu Gly Leu Arg Leu Val Asp Gly  
 145 150 155 160

Asn Asn Ser Cys Ser Gly Arg Val Glu Val Lys Phe Gln Glu Arg Trp  
 165 170 175

Gly Thr Ile Cys Asp Asp Gly Trp Asn Leu Asn Thr Ala Ala Val Val  
 180 185 190

Cys Arg Gln Leu Gly Cys Pro Ser Ser Phe Ile Ser Ser Gly Val Val  
 195 200 205

Asn Ser Pro Ala Val Leu Arg Pro Ile Trp Leu Asp Asp Ile Leu Cys  
 210 215 220

Gln Gly Asn Glu Leu Ala Leu Trp Asn Cys Arg His Arg Gly Trp Gly  
 225 230 235 240

Asn His Asp Cys Ser His Asn Glu Asp Val Thr Leu Thr Cys Tyr Asp  
 245 250 255

Ser Ser Asp Leu Glu Leu Arg Leu Val Gly Gly Thr Asn Arg Cys Met  
 260 265 270

Gly Arg Val Glu Leu Lys Ile Gln Gly Arg Trp Gly Thr Val Cys His  
 275 280 285

His Lys Trp Asn Asn Ala Ala Ala Asp Val Val Cys Lys Gln Leu Gly  
 290 295 300

Cys Gly Thr Ala Leu His Phe Ala Gly Leu Pro His Leu Gln Ser Gly  
 305 310 315 320

Ser Asp Val Val Trp Leu Asp Gly Val Ser Cys Ser Gly Asn Glu Ser  
 325 330 335

Phe Leu Trp Asp Cys Arg His Ser Gly Thr Val Asn Phe Asp Cys Leu  
 340 345 350

His Gln Asn Asp Val Ser Val Ile Cys Ser Asp Gly Ala Asp Leu Glu  
 355 360 365

Leu Arg Leu Ala Asp Gly Ser Asn Asn Cys Ser Gly Arg Val Glu Val  
 370 375 380

Arg Ile His Glu Gln Trp Trp Thr Ile Cys Asp Gln Asn Trp Lys Asn  
 385 390 395 400

Glu Gln Ala Leu Val Val Cys Lys Gln Leu Gly Cys Pro Phe Ser Val  
 405 410 415

Phe Gly Ser Arg Arg Ala Lys Pro Ser Asn Glu Ala Arg Asp Ile Trp  
 420 425 430

Ile Asn Ser Ile Ser Cys Thr Gly Asn Glu Ser Ala Leu Trp Asp Cys  
 435 440 445

Thr Tyr Asp Gly Lys Ala Lys Arg Thr Cys Phe Arg Arg Ser Asp Ala  
 450 455 460

Gly Val Ile Cys Ser Asp Lys Ala Asp Leu Asp Leu Arg Leu Val Gly  
 465 470 475 480

Ala His Ser Pro Cys Tyr Gly Arg Leu Glu Val Lys Tyr Gln Gly Glu  
 485 490 495

Trp Gly Thr Val Cys His Asp Arg Trp Ser Thr Arg Asn Ala Ala Val  
 500 505 510

Val Cys Lys Gln Leu Gly Cys Gly Lys Pro Met His Val Phe Gly Met  
 515 520 525

Thr Tyr Phe Lys Glu Ala Ser Gly Pro Ile Trp Leu Asp Asp Val Ser  
 530 535 540

Cys Ile Gly Asn Glu Ser Asn Ile Trp Asp Cys Glu His Ser Gly Trp  
545 550 555 560

Gly Lys His Asn Cys Val His Arg Glu Asp Val Ile Val Thr Cys Ser  
565 570 575

Gly Asp Ala Thr Trp Gly Leu Arg Leu Val Gly Gly Ser Asn Arg Cys  
580 585 590

Ser Gly Arg Leu Glu Val Tyr Phe Gln Gly Arg Trp Gly Thr Val Cys  
595 600 605

Asp Asp Gly Trp Asn Ser Lys Ala Ala Ala Val Val Cys Ser Gln Leu  
610 615 620

Asp Cys Pro Ser Ser Ile Ile Gly Met Gly Leu Gly Asn Ala Ser Thr  
625 630 635 640

Gly Tyr Gly Lys Ile Trp Leu Asp Asp Val Ser Cys Asp Gly Asp Glu  
645 650 655

Ser Asp Leu Trp Ser Cys Arg Asn Ser Gly Trp Gly Asn Asn Asp Cys  
660 665 670

Ser His Ser Glu Asp Val Gly Val Ile Cys Ser Asp Ala Ser Asp Met  
675 680 685

Glu Leu Arg Leu Val Gly Gly Ser Ser Arg Cys Ala Gly Lys Val Glu  
690 695 700

Val Asn Val Gln Gly Ala Val Gly Ile Leu Cys Ala Asn Gly Trp Gly  
705 710 715 720

Met Asn Ile Ala Glu Val Val Cys Arg Gln Leu Glu Cys Gly Ser Ala  
725 730 735

Ile Arg Val Ser Arg Glu Pro His Phe Thr Glu Arg Thr Leu His Ile  
740 745 750

Leu Met Ser Asn Ser Gly Cys Thr Gly Gly Glu Ala Ser Leu Trp Asp  
755 760 765

Cys Ile Arg Trp Glu Trp Lys Gln Thr Ala Cys His Leu Asn Met Glu  
770 775 780

Ala Ser Leu Ile Cys Ser Ala His Arg Gln Pro Arg Leu Val Gly Ala  
785 790 795 800

Asp Met Pro Cys Ser Gly Arg Val Glu Val Lys His Ala Asp Thr Trp	805	810	815
Arg Ser Val Cys Asp Ser Asp Phe Ser Leu His Ala Ala Asn Val Leu	820	825	830
Cys Arg Glu Leu Asn Cys Gly Asp Ala Ile Ser Leu Ser Val Gly Asp	835	840	845
His Phe Gly Lys Gly Asn Gly Leu Thr Trp Ala Glu Lys Phe Gln Cys	850	855	860
Glu Gly Ser Glu Thr His Leu Ala Leu Cys Pro Ile Val Gln His Pro	865	870	875
Glu Asp Thr Cys Ile His Ser Arg Glu Val Gly Val Val Cys Ser Arg	885	890	895
Tyr Thr Asp Val Arg Leu Val Asn Gly Lys Ser Gln Cys Asp Gly Gln	900	905	910
Val Glu Ile Asn Val Leu Gly His Trp Gly Ser Leu Cys Asp Thr His	915	920	925
Trp Asp Pro Glu Asp Ala Arg Val Leu Cys Arg Gln Leu Ser Cys Gly	930	935	940
Thr Ala Leu Ser Thr Thr Gly Gly Lys Tyr Ile Gly Glu Arg Ser Val	945	950	955
Arg Val Trp Gly His Arg Phe His Cys Leu Gly Asn Glu Ser Leu Leu	965	970	975
Asp Asn Cys Gln Met Thr Val Leu Gly Ala Pro Pro Cys Ile His Gly	980	985	990
Asn Thr Val Ser Val Ile Cys Thr Gly Ser Leu Thr Gln Pro Leu Phe	995	1000	1005
Pro Cys Leu Ala Asn Val Ser Asp Pro Tyr Leu Ser Ala Val Pro Glu	1010	1015	1020
Gly Ser Ala Leu Ile Cys Leu Glu Asp Lys Arg Leu Arg Leu Val Asp	1025	1030	1035
Gly Asp Ser Arg Cys Ala Gly Arg Val Glu Ile Tyr His Asp Gly Phe	1045	1050	1055



Trp Gly Thr Ile Cys Asp Asp Gly Trp Asp Leu Ser Asp Ala His Val  
 1060 1065 1070

Val Cys Gln Lys Leu Gly Cys Gly Val Ala Phe Asn Ala Thr Val Ser  
 1075 1080 1085

Ala His Phe Gly Glu Gly Ser Gly Pro Ile Trp Leu Asp Asp Leu Asn  
 1090 1095 1100

Cys Thr Gly Thr Glu Ser His Leu Trp Gln Cys Pro Ser Arg Gly Trp  
 1105 1110 1115 1120

Gly Gln His Asp Cys Arg His Lys Glu Asp Ala Gly Val Ile Cys Ser  
 1125 1130 1135

Glu Phe Thr Ala Leu Arg Leu Tyr Ser Glu Thr Glu Thr Glu Ser Cys  
 1140 1145 1150

Ala Gly Arg Leu Glu Val Phe Tyr Asn Gly Thr Trp Gly Ser Val Gly  
 1155 1160 1165

Arg Arg Asn Ile Thr Thr Ala Ile Ala Gly Ile Val Cys Arg Gln Leu  
 1170 1175 1180

Gly Cys Gly Glu Asn Gly Val Val Ser Leu Ala Pro Leu Ser Lys Thr  
 1185 1190 1195 1200

Gly Ser Gly Phe Met Trp Val Asp Asp Ile Gln Cys Pro Lys Thr His  
 1205 1210 1215

Ile Ser Ile Trp Gln Cys Leu Ser Ala Pro Trp Glu Arg Arg Ile Ser  
 1220 1225 1230

Ser Pro Ala Glu Glu Thr Trp Ile Thr Cys Glu Asp Arg Ile Arg Val  
 1235 1240 1245

Arg Gly Gly Asp Thr Glu Cys Ser Gly Arg Val Glu Ile Trp His Ala  
 1250 1255 1260

Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Leu Ala Glu Ala  
 1265 1270 1275 1280

Glu Val Val Cys Gln Gln Leu Gly Cys Gly Ser Ala Leu Ala Ala Leu  
 1285 1290 1295

Arg Asp Ala Ser Phe Gly Gln Gly Thr Gly Thr Ile Trp Leu Asp Asp  
 1300 1305 1310

Met Arg Cys Lys Gly Asn Glu Ser Phe Leu Trp Asp Cys His Ala Lys  
 1315 1320 1325

Pro Trp Gly Gln Ser Asp Cys Gly His Lys Glu Asp Ala Gly Val Arg  
 1330 1335 1340

Cys Ser Gly Gln Ser Leu Lys Ser Leu Asn Ala Ser Ser Gly His Leu  
 1345 1350 1355 1360

Ala Leu Ile Leu Ser Ser Ile Phe Gly Leu Leu Leu Leu Val Leu Phe  
 1365 1370 1375

Ile Leu Phe Leu Thr Trp Cys Arg Val Gln Lys Gln Lys His Leu Pro  
 1380 1385 1390

Leu Arg Val Ser Thr Arg Arg Arg Gly Ser Leu Glu Glu Asn Leu Phe  
 1395 1400 1405

His Glu Met Glu Thr Cys Leu Lys Arg Glu Asp Pro His Gly Thr Arg  
 1410 1415 1420

Thr Ser Asp Asp Thr Pro Asn His Gly Cys Glu Asp Ala Ser Asp Thr  
 1425 1430 1435 1440

Ser Leu Leu Gly Val Leu Pro Ala Ser Glu Ala Thr Lys  
 1445 1450

<210> 12

<211> 40

<212> PRT

<213> Homo sapiens

<400> 12

Met Met Leu Pro Gln Asn Ser Trp His Ile Asp Phe Gly Arg Cys Cys  
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Cys His Gln Asn Leu Phe Ser Ala Val Val Thr Cys Ile Leu Leu Leu  
 20 25 30

Asn Ser Cys Phe Leu Ile Ser Ser  
 35 40

<210> 13

<211> 1413

<212> PRT

<213> Homo sapiens

<400> 13

Phe Asn Gly Thr Asp Leu Glu Leu Arg Leu Val Asn Gly Asp Gly Pro  
1 5 10 15

Cys Ser Gly Thr Val Glu Val Lys Phe Gln Gly Gln Trp Gly Thr Val  
20 25 30

Cys Asp Asp Gly Trp Asn Thr Thr Ala Ser Thr Val Val Cys Lys Gln  
35 40 45

Leu Gly Cys Pro Phe Ser Phe Ala Met Phe Arg Phe Gly Gln Ala Val  
50 55 60

Thr Arg His Gly Lys Ile Trp Leu Asp Asp Val Ser Cys Tyr Gly Asn  
65 70 75 80

Glu Ser Ala Leu Trp Glu Cys Gln His Arg Glu Trp Gly Ser His Asn  
85 90 95

Cys Tyr His Gly Glu Asp Val Gly Val Asn Cys Tyr Gly Glu Ala Asn  
100 105 110

Leu Gly Leu Arg Leu Val Asp Gly Asn Asn Ser Cys Ser Gly Arg Val  
115 120 125

Glu Val Lys Phe Gln Glu Arg Trp Gly Thr Ile Cys Asp Asp Gly Trp  
130 135 140

Asn Leu Asn Thr Ala Ala Val Val Cys Arg Gln Leu Gly Cys Pro Ser  
145 150 155 160

Ser Phe Ile Ser Ser Gly Val Val Asn Ser Pro Ala Val Leu Arg Pro  
165 170 175

Ile Trp Leu Asp Asp Ile Leu Cys Gln Gly Asn Glu Leu Ala Leu Trp  
180 185 190

Asn Cys Arg His Arg Gly Trp Gly Asn His Asp Cys Ser His Asn Glu  
195 200 205

Asp Val Thr Leu Thr Cys Tyr Asp Ser Ser Asp Leu Glu Leu Arg Leu  
210 215 220

Val Gly Gly Thr Asn Arg Cys Met Gly Arg Val Glu Leu Lys Ile Gln  
225 230 235 240

Gly Arg Trp Gly Thr Val Cys His His Lys Trp Asn Asn Ala Ala Ala  
 245 250 255

Asp Val Val Cys Lys Gln Leu Gly Cys Gly Thr Ala Leu His Phe Ala  
 260 265 270

Gly Leu Pro His Leu Gln Ser Gly Ser Asp Val Val Trp Leu Asp Gly  
 275 280 285

Val Ser Cys Ser Gly Asn Glu Ser Phe Leu Trp Asp Cys Arg His Ser  
 290 295 300

Gly Thr Val Asn Phe Asp Cys Leu His Gln Asn Asp Val Ser Val Ile  
 305 310 315 320

Cys Ser Asp Gly Ala Asp Leu Glu Leu Arg Leu Ala Asp Gly Ser Asn  
 325 330 335

Asn Cys Ser Gly Arg Val Glu Val Arg Ile His Glu Gln Trp Trp Thr  
 340 345 350

Ile Cys Asp Gln Asn Trp Lys Asn Glu Gln Ala Leu Val Val Cys Lys  
 355 360 365

Gln Leu Gly Cys Pro Phe Ser Val Phe Gly Ser Arg Arg Ala Lys Pro  
 370 375 380

Ser Asn Glu Ala Arg Asp Ile Trp Ile Asn Ser Ile Ser Cys Thr Gly  
 385 390 395 400

Asn Glu Ser Ala Leu Trp Asp Cys Thr Tyr Asp Gly Lys Ala Lys Arg  
 405 410 415

Thr Cys Phe Arg Arg Ser Asp Ala Gly Val Ile Cys Ser Asp Lys Ala  
 420 425 430

Asp Leu Asp Leu Arg Leu Val Gly Ala His Ser Pro Cys Tyr Gly Arg  
 435 440 445

Leu Glu Val Lys Tyr Gln Gly Glu Trp Gly Thr Val Cys His Asp Arg  
 450 455 460

Trp Ser Thr Arg Asn Ala Ala Val Val Cys Lys Gln Leu Gly Cys Gly  
 465 470 475 480

Lys Pro Met His Val Phe Gly Met Thr Tyr Phe Lys Glu Ala Ser Gly  
 485 490 495

Pro Ile Trp Leu Asp Asp Val Ser Cys Ile Gly Asn Glu Ser Asn Ile  
500 505 510

Trp Asp Cys Glu His Ser Gly Trp Gly Lys His Asn Cys Val His Arg  
515 520 525

Glu Asp Val Ile Val Thr Cys Ser Gly Asp Ala Thr Trp Gly Leu Arg  
530 535 540

Leu Val Gly Gly Ser Asn Arg Cys Ser Gly Arg Leu Glu Val Tyr Phe  
545 550 555 560

Gln Gly Arg Trp Gly Thr Val Cys Asp Asp Gly Trp Asn Ser Lys Ala  
565 570 575

Ala Ala Val Val Cys Ser Gln Leu Asp Cys Pro Ser Ser Ile Ile Gly  
580 585 590

Met Gly Leu Gly Asn Ala Ser Thr Gly Tyr Gly Lys Ile Trp Leu Asp  
595 600 605

Asp Val Ser Cys Asp Gly Asp Glu Ser Asp Leu Trp Ser Cys Arg Asn  
610 615 620

Ser Gly Trp Gly Asn Asn Asp Cys Ser His Ser Glu Asp Val Gly Val  
625 630 635 640

Ile Cys Ser Asp Ala Ser Asp Met Glu Leu Arg Leu Val Gly Gly Ser  
645 650 655

Ser Arg Cys Ala Gly Lys Val Glu Val Asn Val Gln Gly Ala Val Gly  
660 665 670

Ile Leu Cys Ala Asn Gly Trp Gly Met Asn Ile Ala Glu Val Val Cys  
675 680 685

Arg Gln Leu Glu Cys Gly Ser Ala Ile Arg Val Ser Arg Glu Pro His  
690 695 700

Phe Thr Glu Arg Thr Leu His Ile Leu Met Ser Asn Ser Gly Cys Thr  
705 710 715 720

Gly Gly Glu Ala Ser Leu Trp Asp Cys Ile Arg Trp Glu Trp Lys Gln  
725 730 735

Thr Ala Cys His Leu Asn Met Glu Ala Ser Leu Ile Cys Ser Ala His  
740 745 750

Arg Gln Pro Arg Leu Val Gly Ala Asp Met Pro Cys Ser Gly Arg Val  
755 760 765

Glu Val Lys His Ala Asp Thr Trp Arg Ser Val Cys Asp Ser Asp Phe  
770 775 780

Ser Leu His Ala Ala Asn Val Leu Cys Arg Glu Leu Asn Cys Gly Asp  
785 790 795 800

Ala Ile Ser Leu Ser Val Gly Asp His Phe Gly Lys Gly Asn Gly Leu  
805 810 815

Thr Trp Ala Glu Lys Phe Gln Cys Glu Gly Ser Glu Thr His Leu Ala  
820 825 830

Leu Cys Pro Ile Val Gln His Pro Glu Asp Thr Cys Ile His Ser Arg  
835 840 845

Glu Val Gly Val Val Cys Ser Arg Tyr Thr Asp Val Arg Leu Val Asn  
850 855 860

Gly Lys Ser Gln Cys Asp Gly Gln Val Glu Ile Asn Val Leu Gly His  
865 870 875 880

Trp Gly Ser Leu Cys Asp Thr His Trp Asp Pro Glu Asp Ala Arg Val  
885 890 895

Leu Cys Arg Gln Leu Ser Cys Gly Thr Ala Leu Ser Thr Thr Gly Gly  
900 905 910

Lys Tyr Ile Gly Glu Arg Ser Val Arg Val Trp Gly His Arg Phe His  
915 920 925

Cys Leu Gly Asn Glu Ser Leu Leu Asp Asn Cys Gln Met Thr Val Leu  
930 935 940

Gly Ala Pro Pro Cys Ile His Gly Asn Thr Val Ser Val Ile Cys Thr  
945 950 955 960

Gly Ser Leu Thr Gln Pro Leu Phe Pro Cys Leu Ala Asn Val Ser Asp  
965 970 975

Pro Tyr Leu Ser Ala Val Pro Glu Gly Ser Ala Leu Ile Cys Leu Glu  
980 985 990

Asp Lys Arg Leu Arg Leu Val Asp Gly Asp Ser Arg Cys Ala Gly Arg  
995 1000 1005

Val Glu Ile Tyr His Asp Gly Phe Trp Gly Thr Ile Cys Asp Asp Gly  
 1010 1015 1020  
 Trp Asp Leu Ser Asp Ala His Val Val Cys Gln Lys Leu Gly Cys Gly  
 1025 1030 1035 1040  
 Val Ala Phe Asn Ala Thr Val Ser Ala His Phe Gly Glu Gly Ser Gly  
 1045 1050 1055  
 Pro Ile Trp Leu Asp Asp Leu Asn Cys Thr Gly Thr Glu Ser His Leu  
 1060 1065 1070  
 Trp Gln Cys Pro Ser Arg Gly Trp Gly Gln His Asp Cys Arg His Lys  
 1075 1080 1085  
 Glu Asp Ala Gly Val Ile Cys Ser Glu Phe Thr Ala Leu Arg Leu Tyr  
 1090 1095 1100  
 Ser Glu Thr Glu Thr Glu Ser Cys Ala Gly Arg Leu Glu Val Phe Tyr  
 1105 1110 1115 1120  
 Asn Gly Thr Trp Gly Ser Val Gly Arg Arg Asn Ile Thr Thr Ala Ile  
 1125 1130 1135  
 Ala Gly Ile Val Cys Arg Gln Leu Gly Cys Gly Glu Asn Gly Val Val  
 1140 1145 1150  
 Ser Leu Ala Pro Leu Ser Lys Thr Gly Ser Gly Phe Met Trp Val Asp  
 1155 1160 1165  
 Asp Ile Gln Cys Pro Lys Thr His Ile Ser Ile Trp Gln Cys Leu Ser  
 1170 1175 1180  
 Ala Pro Trp Glu Arg Arg Ile Ser Ser Pro Ala Glu Glu Thr Trp Ile  
 1185 1190 1195 1200  
 Thr Cys Glu Asp Arg Ile Arg Val Arg Gly Gly Asp Thr Glu Cys Ser  
 1205 1210 1215  
 Gly Arg Val Glu Ile Trp His Ala Gly Ser Trp Gly Thr Val Cys Asp  
 1220 1225 1230  
 Asp Ser Trp Asp Leu Ala Glu Ala Glu Val Val Cys Gln Gln Leu Gly  
 1235 1240 1245  
 Cys Gly Ser Ala Leu Ala Ala Leu Arg Asp Ala Ser Phe Gly Gln Gly  
 1250 1255 1260

Thr Gly Thr Ile Trp Leu Asp Asp Met Arg Cys Lys Gly Asn Glu Ser  
1265 1270 1275 1280

Phe Leu Trp Asp Cys His Ala Lys Pro Trp Gly Gln Ser Asp Cys Gly  
1285 1290 1295

His Lys Glu Asp Ala Gly Val Arg Cys Ser Gly Gln Ser Leu Lys Ser  
1300 1305 1310

Leu Asn Ala Ser Ser Gly His Leu Ala Leu Ile Leu Ser Ser Ile Phe  
1315 1320 1325

Gly Leu Leu Leu Leu Val Leu Phe Ile Leu Phe Leu Thr Trp Cys Arg  
1330 1335 1340

Val Gln Lys Gln Lys His Leu Pro Leu Arg Val Ser Thr Arg Arg Arg  
1345 1350 1355 1360

Gly Ser Leu Glu Glu Asn Leu Phe His Glu Met Glu Thr Cys Leu Lys  
1365 1370 1375

Arg Glu Asp Pro His Gly Thr Arg Thr Ser Asp Asp Thr Pro Asn His  
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Gly Cys Glu Asp Ala Ser Asp Thr Ser Leu Leu Gly Val Leu Pro Ala  
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Ser Glu Ala Thr Lys  
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<211> 1319

<212> PRT

<213> Homo sapiens

<400> 14

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Cys Asp Asp Gly Trp Asn Thr Thr Ala Ser Thr Val Val Cys Lys Gln  
35 40 45

Leu Gly Cys Pro Phe Ser Phe Ala Met Phe Arg Phe Gly Gln Ala Val  
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Thr	Arg	His	Gly	Lys	Ile	Trp	Leu	Asp	Asp	Val	Ser	Cys	Tyr	Gly	Asn	65	70	75	80
Glu	Ser	Ala	Leu	Trp	Glu	Cys	Gln	His	Arg	Glu	Trp	Gly	Ser	His	Asn	85	90	95	
Cys	Tyr	His	Gly	Glu	Asp	Val	Gly	Val	Asn	Cys	Tyr	Gly	Glu	Ala	Asn	100	105	110	
Leu	Gly	Leu	Arg	Leu	Val	Asp	Gly	Asn	Asn	Ser	Cys	Ser	Gly	Arg	Val	115	120	125	
Glu	Val	Lys	Phe	Gln	Glu	Arg	Trp	Gly	Thr	Ile	Cys	Asp	Asp	Gly	Trp	130	135	140	
Asn	Leu	Asn	Thr	Ala	Ala	Val	Val	Cys	Arg	Gln	Leu	Gly	Cys	Pro	Ser	145	150	155	160
Ser	Phe	Ile	Ser	Ser	Gly	Val	Val	Asn	Ser	Pro	Ala	Val	Leu	Arg	Pro	165	170	175	
Ile	Trp	Leu	Asp	Asp	Ile	Leu	Cys	Gln	Gly	Asn	Glu	Leu	Ala	Leu	Trp	180	185	190	
Asn	Cys	Arg	His	Arg	Gly	Trp	Gly	Asn	His	Asp	Cys	Ser	His	Asn	Glu	195	200	205	
Asp	Val	Thr	Leu	Thr	Cys	Tyr	Asp	Ser	Ser	Asp	Leu	Glu	Leu	Arg	Leu	210	215	220	
Val	Gly	Gly	Thr	Asn	Arg	Cys	Met	Gly	Arg	Val	Glu	Leu	Lys	Ile	Gln	225	230	235	240
Gly	Arg	Trp	Gly	Thr	Val	Cys	His	His	Lys	Trp	Asn	Asn	Ala	Ala	Ala	245	250	255	
Asp	Val	Val	Cys	Lys	Gln	Leu	Gly	Cys	Gly	Thr	Ala	Leu	His	Phe	Ala	260	265	270	
Gly	Leu	Pro	His	Leu	Gln	Ser	Gly	Ser	Asp	Val	Val	Trp	Leu	Asp	Gly	275	280	285	
Val	Ser	Cys	Ser	Gly	Asn	Glu	Ser	Phe	Leu	Trp	Asp	Cys	Arg	His	Ser	290	295	300	
Gly	Thr	Val	Asn	Phe	Asp	Cys	Leu	His	Gln	Asn	Asp	Val	Ser	Val	Ile	305	310	315	320

Cys Ser Asp Gly Ala Asp Leu Glu Leu Arg Leu Ala Asp Gly Ser Asn  
 325 330 335

Asn Cys Ser Gly Arg Val Glu Val Arg Ile His Glu Gln Trp Trp Thr  
 340 345 350

Ile Cys Asp Gln Asn Trp Lys Asn Glu Gln Ala Leu Val Val Cys Lys  
 355 360 365

Gln Leu Gly Cys Pro Phe Ser Val Phe Gly Ser Arg Arg Ala Lys Pro  
 370 375 380

Ser Asn Glu Ala Arg Asp Ile Trp Ile Asn Ser Ile Ser Cys Thr Gly  
 385 390 395 400

Asn Glu Ser Ala Leu Trp Asp Cys Thr Tyr Asp Gly Lys Ala Lys Arg  
 405 410 415

Thr Cys Phe Arg Arg Ser Asp Ala Gly Val Ile Cys Ser Asp Lys Ala  
 420 425 430

Asp Leu Asp Leu Arg Leu Val Gly Ala His Ser Pro Cys Tyr Gly Arg  
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Leu Glu Val Lys Tyr Gln Gly Glu Trp Gly Thr Val Cys His Asp Arg  
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Trp Ser Thr Arg Asn Ala Ala Val Val Cys Lys Gln Leu Gly Cys Gly  
 465 470 475 480

Lys Pro Met His Val Phe Gly Met Thr Tyr Phe Lys Glu Ala Ser Gly  
 485 490 495

Pro Ile Trp Leu Asp Asp Val Ser Cys Ile Gly Asn Glu Ser Asn Ile  
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Trp Asp Cys Glu His Ser Gly Trp Gly Lys His Asn Cys Val His Arg  
 515 520 525

Glu Asp Val Ile Val Thr Cys Ser Gly Asp Ala Thr Trp Gly Leu Arg  
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Leu Val Gly Gly Ser Asn Arg Cys Ser Gly Arg Leu Glu Val Tyr Phe  
 545 550 555 560

Gln Gly Arg Trp Gly Thr Val Cys Asp Asp Gly Trp Asn Ser Lys Ala  
 565 570 575

Ala Ala Val Val Cys Ser Gln Leu Asp Cys Pro Ser Ser Ile Ile Gly  
580 585 590

Met Gly Leu Gly Asn Ala Ser Thr Gly Tyr Gly Lys Ile Trp Leu Asp  
595 600 605

Asp Val Ser Cys Asp Gly Asp Glu Ser Asp Leu Trp Ser Cys Arg Asn  
610 615 620

Ser Gly Trp Gly Asn Asn Asp Cys Ser His Ser Glu Asp Val Gly Val  
625 630 635 640

Ile Cys Ser Asp Ala Ser Asp Met Glu Leu Arg Leu Val Gly Gly Ser  
645 650 655

Ser Arg Cys Ala Gly Lys Val Glu Val Asn Val Gln Gly Ala Val Gly  
660 665 670

Ile Leu Cys Ala Asn Gly Trp Gly Met Asn Ile Ala Glu Val Val Cys  
675 680 685

Arg Gln Leu Glu Cys Gly Ser Ala Ile Arg Val Ser Arg Glu Pro His  
690 695 700

Phe Thr Glu Arg Thr Leu His Ile Leu Met Ser Asn Ser Gly Cys Thr  
705 710 715 720

Gly Gly Glu Ala Ser Leu Trp Asp Cys Ile Arg Trp Glu Trp Lys Gln  
725 730 735

Thr Ala Cys His Leu Asn Met Glu Ala Ser Leu Ile Cys Ser Ala His  
740 745 750

Arg Gln Pro Arg Leu Val Gly Ala Asp Met Pro Cys Ser Gly Arg Val  
755 760 765

Glu Val Lys His Ala Asp Thr Trp Arg Ser Val Cys Asp Ser Asp Phe  
770 775 780

Ser Leu His Ala Ala Asn Val Leu Cys Arg Glu Leu Asn Cys Gly Asp  
785 790 795 800

Ala Ile Ser Leu Ser Val Gly Asp His Phe Gly Lys Gly Asn Gly Leu  
805 810 815

Thr Trp Ala Glu Lys Phe Gln Cys Glu Gly Ser Glu Thr His Leu Ala  
820 825 830

Leu Cys Pro Ile Val Gln His Pro Glu Asp Thr Cys Ile His Ser Arg  
835 840 845

Glu Val Gly Val Val Cys Ser Arg Tyr Thr Asp Val Arg Leu Val Asn  
850 855 860

Gly Lys Ser Gln Cys Asp Gly Gln Val Glu Ile Asn Val Leu Gly His  
865 870 875 880

Trp Gly Ser Leu Cys Asp Thr His Trp Asp Pro Glu Asp Ala Arg Val  
885 890 895

Leu Cys Arg Gln Leu Ser Cys Gly Thr Ala Leu Ser Thr Thr Gly Gly  
900 905 910

Lys Tyr Ile Gly Glu Arg Ser Val Arg Val Trp Gly His Arg Phe His  
915 920 925

Cys Leu Gly Asn Glu Ser Leu Leu Asp Asn Cys Gln Met Thr Val Leu  
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Gly Ala Pro Pro Cys Ile His Gly Asn Thr Val Ser Val Ile Cys Thr  
945 950 955 960

Gly Ser Leu Thr Gln Pro Leu Phe Pro Cys Leu Ala Asn Val Ser Asp  
965 970 975

Pro Tyr Leu Ser Ala Val Pro Glu Gly Ser Ala Leu Ile Cys Leu Glu  
980 985 990

Asp Lys Arg Leu Arg Leu Val Asp Gly Asp Ser Arg Cys Ala Gly Arg  
995 1000 1005

Val Glu Ile Tyr His Asp Gly Phe Trp Gly Thr Ile Cys Asp Asp Gly  
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Trp Asp Leu Ser Asp Ala His Val Val Cys Gln Lys Leu Gly Cys Gly  
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Val Ala Phe Asn Ala Thr Val Ser Ala His Phe Gly Glu Gly Ser Gly  
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Pro Ile Trp Leu Asp Asp Leu Asn Cys Thr Gly Thr Glu Ser His Leu  
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Trp Gln Cys Pro Ser Arg Gly Trp Gly Gln His Asp Cys Arg His Lys  
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Glu Asp Ala Gly Val Ile Cys Ser Glu Phe Thr Ala Leu Arg Leu Tyr  
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Ser Glu Thr Glu Thr Glu Ser Cys Ala Gly Arg Leu Glu Val Phe Tyr  
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Asn Gly Thr Trp Gly Ser Val Gly Arg Arg Asn Ile Thr Thr Ala Ile  
1125 1130 1135

Ala Gly Ile Val Cys Arg Gln Leu Gly Cys Gly Glu Asn Gly Val Val  
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Ser Leu Ala Pro Leu Ser Lys Thr Gly Ser Gly Phe Met Trp Val Asp  
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Asp Ile Gln Cys Pro Lys Thr His Ile Ser Ile Trp Gln Cys Leu Ser  
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Ala Pro Trp Glu Arg Arg Ile Ser Ser Pro Ala Glu Glu Thr Trp Ile  
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Asp Ser Trp Asp Leu Ala Glu Ala Glu Val Val Cys Gln Gln Leu Gly  
1235 1240 1245

Cys Gly Ser Ala Leu Ala Ala Leu Arg Asp Ala Ser Phe Gly Gln Gly  
1250 1255 1260

Thr Gly Thr Ile Trp Leu Asp Asp Met Arg Cys Lys Gly Asn Glu Ser  
1265 1270 1275 1280

Phe Leu Trp Asp Cys His Ala Lys Pro Trp Gly Gln Ser Asp Cys Gly  
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His Lys Glu Asp Ala Gly Val Arg Cys Ser Gly Gln Ser Leu Lys Ser  
1300 1305 1310

Leu Asn Ala Ser Ser Gly His  
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<211> 24  
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 <213> Homo sapiens

<400> 15  
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                   20                  25                  30  
 Lys Arg Glu Asp Pro His Gly Thr Arg Thr Ser Asp Asp Thr Pro Asn  
                   35                  40                  45  
 His Gly Cys Glu Asp Ala Ser Asp Thr Ser Leu Leu Gly Val Leu Pro  
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 Ala Ser Glu Ala Thr Lys  
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 <211> 3104  
 <212> DNA  
 <213> Homo sapiens

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<211> 2283

<212> DNA

<213> Homo sapiens

<400> 18

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<210> 19

<211> 761

<212> PRT

<213> Homo sapiens



<400> 19

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Gly Gly Gly Gln Gly Pro Met Pro Arg Val Arg Tyr Tyr Ala Gly Asp  
35 40 45

Glu Arg Arg Ala Leu Ser Phe Phe His Gln Lys Gly Leu Gln Asp Phe  
50 55 60

Asp Thr Leu Leu Leu Ser Gly Asp Gly Asn Thr Leu Tyr Val Gly Ala  
65 70 75 80

Arg Glu Ala Ile Leu Ala Leu Asp Ile Gln Asp Pro Gly Val Pro Arg  
85 90 95

Leu Lys Asn Met Ile Pro Trp Pro Ala Ser Asp Arg Lys Lys Ser Glu  
100 105 110

Cys Ala Phe Lys Lys Lys Ser Asn Glu Thr Gln Cys Phe Asn Phe Ile  
115 120 125

Arg Val Leu Val Ser Tyr Asn Val Thr His Leu Tyr Thr Cys Gly Thr  
130 135 140

Phe Ala Phe Ser Pro Ala Cys Thr Phe Ile Glu Leu Gln Asp Ser Tyr  
145 150 155 160

Leu Leu Pro Ile Ser Glu Asp Lys Val Met Glu Gly Lys Gly Gln Ser  
165 170 175

Pro Phe Asp Pro Ala His Lys His Thr Ala Val Leu Val Asp Gly Met  
180 185 190

Leu Tyr Ser Gly Thr Met Asn Asn Phe Leu Gly Ser Glu Pro Ile Leu  
195 200 205

Met Arg Thr Leu Gly Ser Gln Pro Val Leu Lys Thr Asp Asn Phe Leu  
210 215 220

Arg Trp Leu His His Asp Ala Ser Phe Val Ala Ala Ile Pro Ser Thr  
225 230 235 240

Gln Val Val Tyr Phe Phe Phe Glu Glu Thr Ala Ser Glu Phe Asp Phe  
245 250 255

Phe	Glu	Arg	Leu	His	Thr	Ser	Arg	Val	Ala	Arg	Val	Cys	Lys	Asn	Asp	260	265	270
Val	Gly	Gly	Glu	Lys	Leu	Leu	Gln	Lys	Lys	Trp	Thr	Thr	Phe	Leu	Lys	275	280	285
Ala	Gln	Leu	Leu	Cys	Thr	Gln	Pro	Gly	Gln	Leu	Pro	Phe	Asn	Val	Ile	290	295	300
Arg	His	Ala	Val	Leu	Leu	Pro	Ala	Asp	Ser	Pro	Thr	Ala	Pro	His	Ile	305	310	315 320
Tyr	Ala	Val	Phe	Thr	Ser	Gln	Trp	Gln	Val	Gly	Gly	Thr	Arg	Ser	Ser	325	330	335
Ala	Val	Cys	Ala	Phe	Ser	Leu	Leu	Asp	Ile	Glu	Arg	Val	Phe	Lys	Gly	340	345	350
Lys	Tyr	Lys	Glu	Leu	Asn	Lys	Glu	Thr	Ser	Arg	Trp	Thr	Thr	Tyr	Arg	355	360	365
Gly	Pro	Glu	Thr	Asn	Pro	Arg	Pro	Gly	Ser	Cys	Ser	Val	Gly	Pro	Ser	370	375	380
Ser	Asp	Lys	Ala	Leu	Thr	Phe	Met	Lys	Asp	His	Phe	Leu	Met	Asp	Glu	385	390	395 400
Gln	Val	Val	Gly	Thr	Pro	Leu	Leu	Val	Lys	Ser	Gly	Val	Glu	Tyr	Thr	405	410	415
Arg	Leu	Ala	Val	Glu	Thr	Ala	Gln	Gly	Leu	Asp	Gly	His	Ser	His	Leu	420	425	430
Val	Met	Tyr	Leu	Gly	Thr	Thr	Thr	Gly	Ser	Leu	His	Lys	Ala	Val	Val	435	440	445
Ser	Gly	Asp	Ser	Ser	Ala	His	Leu	Val	Glu	Glu	Ile	Gln	Leu	Phe	Pro	450	455	460
Asp	Pro	Glu	Pro	Val	Arg	Asn	Leu	Gln	Leu	Ala	Pro	Thr	Gln	Gly	Ala	465	470	475 480
Val	Phe	Val	Gly	Phe	Ser	Gly	Gly	Val	Trp	Arg	Val	Pro	Arg	Ala	Asn	485	490	495
Cys	Ser	Val	Tyr	Glu	Ser	Cys	Val	Asp	Cys	Val	Leu	Ala	Arg	Asp	Pro	500	505	510

His Cys Ala Trp Asp Pro Glu Ser Arg Thr Cys Cys Leu Leu Ser Ala  
515 520 525

Pro Asn Leu Asn Ser Trp Lys Gln Asp Met Glu Arg Gly Asn Pro Glu  
530 535 540

Trp Ala Cys Ala Ser Gly Pro Met Ser Arg Ser Leu Arg Pro Gln Ser  
545 550 555 560

Arg Pro Gln Ile Ile Lys Glu Val Leu Ala Val Pro Asn Ser Ile Leu  
565 570 575

Glu Leu Pro Cys Pro His Leu Ser Ala Leu Ala Ser Tyr Tyr Trp Ser  
580 585 590

His Gly Pro Ala Ala Val Pro Glu Ala Ser Ser Thr Val Tyr Asn Gly  
595 600 605

Ser Leu Leu Leu Ile Val Gln Asp Gly Val Gly Gly Leu Tyr Gln Cys  
610 615 620

Trp Ala Thr Glu Asn Gly Phe Ser Tyr Pro Val Ile Ser Tyr Trp Val  
625 630 635 640

Asp Ser Gln Asp Gln Thr Leu Ala Leu Asp Pro Glu Leu Ala Gly Ile  
645 650 655

Pro Arg Glu His Val Lys Val Pro Leu Thr Arg Val Ser Gly Gly Ala  
660 665 670

Ala Leu Ala Ala Gln Gln Ser Tyr Trp Pro His Phe Val Thr Val Thr  
675 680 685

Val Leu Phe Ala Leu Val Leu Ser Gly Ala Leu Ile Ile Leu Val Ala  
690 695 700

Ser Pro Leu Arg Ala Leu Arg Ala Arg Gly Lys Val Gln Gly Cys Glu  
705 710 715 720

Thr Leu Arg Pro Gly Glu Lys Ala Pro Leu Ser Arg Glu Gln His Leu  
725 730 735

Gln Ser Pro Lys Glu Cys Arg Thr Ser Ala Ser Asp Val Asp Ala Asp  
740 745 750

Asn Asn Cys Leu Gly Thr Glu Val Ala  
755 760

<210> 20  
 <211> 31  
 <212> PRT  
 <213> Homo sapiens

<400> 20  
 Met Ala Leu Pro Ala Leu Gly Leu Asp Pro Trp Ser Leu Leu Gly Leu  
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 Phe Leu Phe Gln Leu Leu Gln Leu Leu Leu Pro Thr Thr Thr Ala  
                   20                  25                  30

<210> 21  
 <211> 730  
 <212> PRT  
 <213> Homo sapiens

<400> 21  
 Gly Gly Gly Gly Gln Gly Pro Met Pro Arg Val Arg Tyr Tyr Ala Gly  
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 Asp Glu Arg Arg Ala Leu Ser Phe Phe His Gln Lys Gly Leu Gln Asp  
                   20                  25                  30  
 Phe Asp Thr Leu Leu Leu Ser Gly Asp Gly Asn Thr Leu Tyr Val Gly  
           35                  40                  45  
 Ala Arg Glu Ala Ile Leu Ala Leu Asp Ile Gln Asp Pro Gly Val Pro  
           50                  55                  60  
 Arg Leu Lys Asn Met Ile Pro Trp Pro Ala Ser Asp Arg Lys Lys Ser  
           65                  70                  75                  80  
 Glu Cys Ala Phe Lys Lys Lys Ser Asn Glu Thr Gln Cys Phe Asn Phe  
                   85                  90                  95  
 Ile Arg Val Leu Val Ser Tyr Asn Val Thr His Leu Tyr Thr Cys Gly  
           100                  105                  110  
 Thr Phe Ala Phe Ser Pro Ala Cys Thr Phe Ile Glu Leu Gln Asp Ser  
           115                  120                  125  
 Tyr Leu Leu Pro Ile Ser Glu Asp Lys Val Met Glu Gly Lys Gly Gln  
           130                  135                  140

Ser Pro Phe Asp Pro Ala His Lys His Thr Ala Val Leu Val Asp Gly  
145 150 155 160

Met Leu Tyr Ser Gly Thr Met Asn Asn Phe Leu Gly Ser Glu Pro Ile  
165 170 175

Leu Met Arg Thr Leu Gly Ser Gln Pro Val Leu Lys Thr Asp Asn Phe  
180 185 190

Leu Arg Trp Leu His His Asp Ala Ser Phe Val Ala Ala Ile Pro Ser  
195 200 205

Thr Gln Val Val Tyr Phe Phe Phe Glu Glu Thr Ala Ser Glu Phe Asp  
210 215 220

Phe Phe Glu Arg Leu His Thr Ser Arg Val Ala Arg Val Cys Lys Asn  
225 230 235 240

Asp Val Gly Gly Glu Lys Leu Leu Gln Lys Lys Trp Thr Thr Phe Leu  
245 250 255

Lys Ala Gln Leu Leu Cys Thr Gln Pro Gly Gln Leu Pro Phe Asn Val  
260 265 270

Ile Arg His Ala Val Leu Leu Pro Ala Asp Ser Pro Thr Ala Pro His  
275 280 285

Ile Tyr Ala Val Phe Thr Ser Gln Trp Gln Val Gly Gly Thr Arg Ser  
290 295 300

Ser Ala Val Cys Ala Phe Ser Leu Leu Asp Ile Glu Arg Val Phe Lys  
305 310 315 320

Gly Lys Tyr Lys Glu Leu Asn Lys Glu Thr Ser Arg Trp Thr Thr Tyr  
325 330 335

Arg Gly Pro Glu Thr Asn Pro Arg Pro Gly Ser Cys Ser Val Gly Pro  
340 345 350

Ser Ser Asp Lys Ala Leu Thr Phe Met Lys Asp His Phe Leu Met Asp  
355 360 365

Glu Gln Val Val Gly Thr Pro Leu Leu Val Lys Ser Gly Val Glu Tyr  
370 375 380

Thr Arg Leu Ala Val Glu Thr Ala Gln Gly Leu Asp Gly His Ser His  
385 390 395 400

Leu Val Met Tyr Leu Gly Thr Thr Thr Gly Ser Leu His Lys Ala Val  
 405 410 415

Val Ser Gly Asp Ser Ser Ala His Leu Val Glu Glu Ile Gln Leu Phe  
 420 425 430

Pro Asp Pro Glu Pro Val Arg Asn Leu Gln Leu Ala Pro Thr Gln Gly  
 435 440 445

Ala Val Phe Val Gly Phe Ser Gly Gly Val Trp Arg Val Pro Arg Ala  
 450 455 460

Asn Cys Ser Val Tyr Glu Ser Cys Val Asp Cys Val Leu Ala Arg Asp  
 465 470 475 480

Pro His Cys Ala Trp Asp Pro Glu Ser Arg Thr Cys Cys Leu Leu Ser  
 485 490 495

Ala Pro Asn Leu Asn Ser Trp Lys Gln Asp Met Glu Arg Gly Asn Pro  
 500 505 510

Glu Trp Ala Cys Ala Ser Gly Pro Met Ser Arg Ser Leu Arg Pro Gln  
 515 520 525

Ser Arg Pro Gln Ile Ile Lys Glu Val Leu Ala Val Pro Asn Ser Ile  
 530 535 540

Leu Glu Leu Pro Cys Pro His Leu Ser Ala Leu Ala Ser Tyr Tyr Trp  
 545 550 555 560

Ser His Gly Pro Ala Ala Val Pro Glu Ala Ser Ser Thr Val Tyr Asn  
 565 570 575

Gly Ser Leu Leu Leu Ile Val Gln Asp Gly Val Gly Gly Leu Tyr Gln  
 580 585 590

Cys Trp Ala Thr Glu Asn Gly Phe Ser Tyr Pro Val Ile Ser Tyr Trp  
 595 600 605

Val Asp Ser Gln Asp Gln Thr Leu Ala Leu Asp Pro Glu Leu Ala Gly  
 610 615 620

Ile Pro Arg Glu His Val Lys Val Pro Leu Thr Arg Val Ser Gly Gly  
 625 630 635 640

Ala Ala Leu Ala Ala Gln Gln Ser Tyr Trp Pro His Phe Val Thr Val  
 645 650 655

Thr Val Leu Phe Ala Leu Val Leu Ser Gly Ala Leu Ile Ile Leu Val  
660 665 670

Ala Ser Pro Leu Arg Ala Leu Arg Ala Arg Gly Lys Val Gln Gly Cys  
675 680 685

Glu Thr Leu Arg Pro Gly Glu Lys Ala Pro Leu Ser Arg Glu Gln His  
690 695 700

Leu Gln Ser Pro Lys Glu Cys Arg Thr Ser Ala Ser Asp Val Asp Ala  
705 710 715 720

Asp Asn Asn Cys Leu Gly Thr Glu Val Ala  
725 730

<210> 22

<211> 652

<212> PRT

<213> Homo sapiens

<400> 22

Gly Gly Gly Gly Gln Gly Pro Met Pro Arg Val Arg Tyr Tyr Ala Gly  
1 5 10 15

Asp Glu Arg Arg Ala Leu Ser Phe Phe His Gln Lys Gly Leu Gln Asp  
20 25 30

Phe Asp Thr Leu Leu Leu Ser Gly Asp Gly Asn Thr Leu Tyr Val Gly  
35 40 45

Ala Arg Glu Ala Ile Leu Ala Leu Asp Ile Gln Asp Pro Gly Val Pro  
50 55 60

Arg Leu Lys Asn Met Ile Pro Trp Pro Ala Ser Asp Arg Lys Lys Ser  
65 70 75 80

Glu Cys Ala Phe Lys Lys Lys Ser Asn Glu Thr Gln Cys Phe Asn Phe  
85 90 95

Ile Arg Val Leu Val Ser Tyr Asn Val Thr His Leu Tyr Thr Cys Gly  
100 105 110

Thr Phe Ala Phe Ser Pro Ala Cys Thr Phe Ile Glu Leu Gln Asp Ser  
115 120 125

Tyr Leu Leu Pro Ile Ser Glu Asp Lys Val Met Glu Gly Lys Gly Gln  
130 135 140

Ser Pro Phe Asp Pro Ala His Lys His Thr Ala Val Leu Val Asp Gly  
 145 150 155 160  
 Met Leu Tyr Ser Gly Thr Met Asn Asn Phe Leu Gly Ser Glu Pro Ile  
 165 170 175  
 Leu Met Arg, Thr Leu Gly Ser Gln Pro Val Leu Lys Thr Asp Asn Phe  
 180 185 190  
 Leu Arg Trp Leu His His Asp Ala Ser Phe Val Ala Ala Ile Pro Ser  
 195 200 205  
 Thr Gln Val Val Tyr Phe Phe Phe Glu Glu Thr Ala Ser Glu Phe Asp  
 210 215 220  
 Phe Phe Glu Arg Leu His Thr Ser Arg Val Ala Arg Val Cys Lys Asn  
 225 230 235 240  
 Asp Val Gly Gly Glu Lys Leu Leu Gln Lys Lys Trp Thr Thr Phe Leu  
 245 250 255  
 Lys Ala Gln Leu Leu Cys Thr Gln Pro Gly Gln Leu Pro Phe Asn Val  
 260 265 270  
 Ile Arg His Ala Val Leu Leu Pro Ala Asp Ser Pro Thr Ala Pro His  
 275 280 285  
 Ile Tyr Ala Val Phe Thr Ser Gln Trp Gln Val Gly Gly Thr Arg Ser  
 290 295 300  
 Ser Ala Val Cys Ala Phe Ser Leu Leu Asp Ile Glu Arg Val Phe Lys  
 305 310 315 320  
 Gly Lys Tyr Lys Glu Leu Asn Lys Glu Thr Ser Arg Trp Thr Thr Tyr  
 325 330 335  
 Arg Gly Pro Glu Thr Asn Pro Arg Pro Gly Ser Cys Ser Val Gly Pro  
 340 345 350  
 Ser Ser Asp Lys Ala Leu Thr Phe Met Lys Asp His Phe Leu Met Asp  
 355 360 365  
 Glu Gln Val Val Gly Thr Pro Leu Leu Val Lys Ser Gly Val Glu Tyr  
 370 375 380  
 Thr Arg Leu Ala Val Glu Thr Ala Gln Gly Leu Asp Gly His Ser His  
 385 390 395 400



Leu Val Met Tyr Leu Gly Thr Thr Thr Gly Ser Leu His Lys Ala Val  
 405 410 415  
 Val Ser Gly Asp Ser Ser Ala His Leu Val Glu Glu Ile Gln Leu Phe  
 420 425 430  
 Pro Asp Pro Glu Pro Val Arg Asn Leu Gln Leu Ala Pro Thr Gln Gly  
 435 440 445  
 Ala Val Phe Val Gly Phe Ser Gly Gly Val Trp Arg Val Pro Arg Ala  
 450 455 460  
 Asn Cys Ser Val Tyr Glu Ser Cys Val Asp Cys Val Leu Ala Arg Asp  
 465 470 475 480  
 Pro His Cys Ala Trp Asp Pro Glu Ser Arg Thr Cys Cys Leu Leu Ser  
 485 490 495  
 Ala Pro Asn Leu Asn Ser Trp Lys Gln Asp Met Glu Arg Gly Asn Pro  
 500 505 510  
 Glu Trp Ala Cys Ala Ser Gly Pro Met Ser Arg Ser Leu Arg Pro Gln  
 515 520 525  
 Ser Arg Pro Gln Ile Ile Lys Glu Val Leu Ala Val Pro Asn Ser Ile  
 530 535 540  
 Leu Glu Leu Pro Cys Pro His Leu Ser Ala Leu Ala Ser Tyr Tyr Trp  
 545 550 555 560  
 Ser His Gly Pro Ala Ala Val Pro Glu Ala Ser Ser Thr Val Tyr Asn  
 565 570 575  
 Gly Ser Leu Leu Leu Ile Val Gln Asp Gly Val Gly Gly Leu Tyr Gln  
 580 585 590  
 Cys Trp Ala Thr Glu Asn Gly Phe Ser Tyr Pro Val Ile Ser Tyr Trp  
 595 600 605  
 Val Asp Ser Gln Asp Gln Thr Leu Ala Leu Asp Pro Glu Leu Ala Gly  
 610 615 620  
 Ile Pro Arg Glu His Val Lys Val Pro Leu Thr Arg Val Ser Gly Gly  
 625 630 635 640  
 Ala Ala Leu Ala Ala Gln Gln Ser Tyr Trp Pro His  
 645 650

<210> 23  
 <211> 21  
 <212> PRT  
 <213> Homo sapiens

<400> 23  
 Phe Val Thr Val Thr Val Leu Phe Ala Leu Val Leu Ser Gly Ala Leu  
           1                  5                  10                  15  
  
 Ile Ile Leu Val Ala  
                   20

<210> 24  
 <211> 57  
 <212> PRT  
 <213> Homo sapiens

<400> 24  
 Ser Pro Leu Arg Ala Leu Arg Ala Arg Gly Lys Val Gln Gly Cys Glu  
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 Thr Leu Arg Pro Gly Glu Lys Ala Pro Leu Ser Arg Glu Gln His Leu  
                   20                  25                  30  
  
 Gln Ser Pro Lys Glu Cys Arg Thr Ser Ala Ser Asp Val Asp Ala Asp  
           35                  40                  45  
  
 Asn Asn Cys Leu Gly Thr Glu Val Ala  
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<210> 25  
 <211> 2964  
 <212> DNA  
 <213> Homo sapiens

<400> 25  
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 ggacgcgagg agccatgagg cgccagcctg cgaaggtggc ggcgctgctg ctcgggctgc 180  
 tcttgagtg cacagaagcc aaaaagcatt gctggtattt cgaaggactc tatccaacct 240  
 attatatatg ccgctcctac gaggactgct gtggctccag gtgctgtgtg cgggccctct 300  
 ccatacagag gctgtgtgtac ttctggttcc ttctgatgat gggcgtgctt ttctgctgcg 360  
 gagccggctt cttcatccgg aggcgcattgt acccccgcgc gctgatcgag gagccagcct 420  
 tcaatgtgtc ctacaccagg cagcccccaa atcccggccc aggagcccag cagccggggc 480

cgccctatta cactgaccca ggaggaccgg ggatgaaccc tgcggaat tccatggcaa 540  
 tggctttcca ggtcccaccc aactcacccc aggggagtg ggctgccc cccctccag 600  
 cctactgcaa cacgcctccg ccccgtagc aacaggtagt gaaggccaag tagtggggtg 660  
 cccacgtgca agaggagaga caggagagg cctttccctg gcctttctgt cttcgttgat 720  
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 caagcacagc tctctttcag gctttccatg gagtacaata tatgaactca cactttgtct 840  
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 cagcagccga ctgagctgag cccagcaggt catctgctcc agcctgtcct ctcgtcagcc 1140  
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 aaaaaaaaaa aaaagggcgg ccgc 2964

<210> 26

<211> 516

<212> DNA

<213> Homo sapiens

<400> 26

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gaagccaaaa agcattgctg gtatttcgaa ggactctatc caacctatta tatatgccgc 120
tcctacgagg actgctgtgg ctccaggtgc tgtgtgcggg ccctctccat acagaggctg 180
tggtacttct ggttccttct gatgatgggc gtgcttttct gctgcggagc cggcttcttc 240
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gacccaggag gaccggggat gaaccctgtc gggaattcca tggcaatggc tttccaggtc 420
ccaccaact caccacaggg gagtgtggcc tgcccgcctc ctccagccta ctgcaacacg 480
cctccgcccc cgtacgaaca ggtagtgaag gccaaag 516
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<210> 27

<211> 172

<212> PRT

<213> Homo sapiens

<400> 27

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Met Arg Arg Gln Pro Ala Lys Val Ala Ala Leu Leu Leu Gly Leu Leu
  1              5              10              15
```

```
Leu Glu Cys Thr Glu Ala Lys Lys His Cys Trp Tyr Phe Glu Gly Leu
              20              25              30
```

```
Tyr Pro Thr Tyr Tyr Ile Cys Arg Ser Tyr Glu Asp Cys Cys Gly Ser
              35              40              45
```

```
Arg Cys Cys Val Arg Ala Leu Ser Ile Gln Arg Leu Trp Tyr Phe Trp
              50              55              60
```

```
Phe Leu Leu Met Met Gly Val Leu Phe Cys Cys Gly Ala Gly Phe Phe
              65              70              75              80
```

```
Ile Arg Arg Arg Met Tyr Pro Pro Pro Leu Ile Glu Glu Pro Ala Phe
              85              90              95
```

```
Asn Val Ser Tyr Thr Arg Gln Pro Pro Asn Pro Gly Pro Gly Ala Gln
              100              105              110
```

```
Gln Pro Gly Pro Pro Tyr Tyr Thr Asp Pro Gly Gly Pro Gly Met Asn
              115              120              125
```

```
Pro Val Gly Asn Ser Met Ala Met Ala Phe Gln Val Pro Pro Asn Ser
              130              135              140
```

```
Pro Gln Gly Ser Val Ala Cys Pro Pro Pro Pro Ala Tyr Cys Asn Thr
              145              150              155              160
```

```
Pro Pro Pro Pro Tyr Glu Gln Val Val Lys Ala Lys
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165

170

&lt;210&gt; 28

&lt;211&gt; 22

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 28

Met Arg Arg Gln Pro Ala Lys Val Ala Ala Leu Leu Leu Gly Leu Leu  
 1 5 10 15

Leu Glu Cys Thr Glu Ala  
 20

&lt;210&gt; 29

&lt;211&gt; 150

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 29

Lys Lys His Cys Trp Tyr Phe Glu Gly Leu Tyr Pro Thr Tyr Tyr Ile  
 1 5 10 15

Cys Arg Ser Tyr Glu Asp Cys Cys Gly Ser Arg Cys Cys Val Arg Ala  
 20 25 30

Leu Ser Ile Gln Arg Leu Trp Tyr Phe Trp Phe Leu Leu Met Met Gly  
 35 40 45

Val Leu Phe Cys Cys Gly Ala Gly Phe Phe Ile Arg Arg Arg Met Tyr  
 50 55 60

Pro Pro Pro Leu Ile Glu Glu Pro Ala Phe Asn Val Ser Tyr Thr Arg  
 65 70 75 80

Gln Pro Pro Asn Pro Gly Pro Gly Ala Gln Gln Pro Gly Pro Pro Tyr  
 85 90 95

Tyr Thr Asp Pro Gly Gly Pro Gly Met Asn Pro Val Gly Asn Ser Met  
 100 105 110

Ala Met Ala Phe Gln Val Pro Pro Asn Ser Pro Gln Gly Ser Val Ala  
 115 120 125

Cys Pro Pro Pro Pro Ala Tyr Cys Asn Thr Pro Pro Pro Pro Tyr Glu  
 130 135 140

Gln Val Val Lys Ala Lys  
145 150

<210> 30  
<211> 38  
<212> PRT  
<213> Homo sapiens

<400> 30  
Lys Lys His Cys Trp Tyr Phe Glu Gly Leu Tyr Pro Thr Tyr Tyr Ile  
1 5 10 15

Cys Arg Ser Tyr Glu Asp Cys Cys Gly Ser Arg Cys Cys Val Arg Ala  
20 25 30

Leu Ser Ile Gln Arg Leu  
35

<210> 31  
<211> 21  
<212> PRT  
<213> Homo sapiens

<400> 31  
Trp Tyr Phe Trp Phe Leu Leu Met Met Gly Val Leu Phe Cys Cys Gly  
1 5 10 15

Ala Gly Phe Phe Ile  
20

<210> 32  
<211> 91  
<212> PRT  
<213> Homo sapiens

<400> 32  
Arg Arg Arg Met Tyr Pro Pro Pro Leu Ile Glu Glu Pro Ala Phe Asn  
1 5 10 15

Val Ser Tyr Thr Arg Gln Pro Pro Asn Pro Gly Pro Gly Ala Gln Gln  
20 25 30

Pro Gly Pro Pro Tyr Tyr Thr Asp Pro Gly Gly Pro Gly Met Asn Pro  
35 40 45

Val Gly Asn Ser Met Ala Met Ala Phe Gln Val Pro Pro Asn Ser Pro  
 50 55 60

Gln Gly Ser Val Ala Cys Pro Pro Pro Pro Ala Tyr Cys Asn Thr Pro  
 65 70 75 80

Pro Pro Pro Tyr Glu Gln Val Val Lys Ala Lys  
 85 90

<210> 33  
 <211> 1980  
 <212> DNA  
 <213> Homo sapiens

<400> 33  
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 ctctgcagg agatgtgtac aaagacaatc ccagtcctct ggggatgttt cctcctgtgg 180  
 aatctctatg tctcatcctc tcagaccatt taccctggaa tcaaggcaag gattactcag 240  
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 tttgtgcctg gagtgggaat caaagcgcta accaaccatg gcactgccaa catcagcaca 480  
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 gttggccttg ttattttggg acaaagactg gtctgtcctt tgtctctgaa cagattccgc 1200  
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 cacgtatggg aagggtctgaa cctgataagc agacagtgga gggggaagtc agccccttga 1500  
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 cccagaaggg aaagacagta cactctggaa ttgtaaagcc cttgtgaatt gcttaggcag 1620  
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 aatagaggtg tctgaatgtg agtgtatgca tgctgcgtgt gtctgtgttt atgtttgttt 1740  
 gtttgttttg ggcaagaaag attctaggac aagagctagg catgtacttc tgaccaggtg 1800  
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tctagtgggtt ttcccctacc tgcattattgg ttttcatggtt ttatatcacac tggtactatc 1920  
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<210> 34

<211> 1365

<212> DNA

<213> Homo sapiens

<400> 34

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 tatgggtgtt aagctggaat gaagatgatt gagcaaatgc taaaagaaaa gaaactccca 180  
 gatttaagcg gttctgagtc tcttgaattt ctaaaagtgt attatgtaaa ctacaatttt 240  
 tcaaataata aatcagtgct cttttcattt ccaaatacct cattggcgtt tgtgcctgga 300  
 gtgggaatca aagcgctaac caaccatggc actgccaaca tcagcacaga ctgggggttc 360  
 gagtctccac tttttgttct gtataactcc tttgctgagc ccatggagaa acccatttta 420  
 aagaacttaa atgaaatgct ctgtcccat attgcaagt aagtcaaagc gctaaatgcc 480  
 aacctcagca cactggaggt ttaaccaag attgacaact acactctgct ggattactcc 540  
 ctaatcagtt ctccagaaat tactgagaac taccttgacc tgaacttgaa ggggtgtattc 600  
 taccactgg aaaacctcac cgaccccccc ttctcaccag ttcttttgt gctcccagaa 660  
 cgcagcaact ccatgctcta cattggaatc gccagatatt tctttaaatc tgcgtccttt 720  
 gctcatttca cagctgggtt tttcaatctc actctctcca ccgaagagat ttccaaccat 780  
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 ccaggcaatt tcacctgga catccctgcc tccatcatga tgctcaccca acccaagaac 960  
 tccacagttg aaaccatcgt ttccatggac ttcgttgcta gtaccagtgt tggcctgggt 1020  
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 cactttggag tcttcccact ggccaatgca aaattgcagc aaggatttcc tctgcccatt 1200  
 ccacacaaat tcttattcgt caattcagat attgaagttc ttgaggggtt ctttttgatt 1260  
 tccaccgacc tgaagtatga aacatcctca aagcagcagc caagtttcca cgtatgggaa 1320  
 ggtctgaacc tgataagcag acagtggagg gggaagtcag cccct 1365

<210> 35

<211> 455

<212> PRT

<213> Homo sapiens

<400> 35

Met Cys Thr Lys Thr Ile Pro Val Leu Trp Gly Cys Phe Leu Leu Trp  
 1 5 10 15  
 Asn Leu Tyr Val Ser Ser Ser Gln Thr Ile Tyr Pro Gly Ile Lys Ala  
 20 25 30  
 Arg Ile Thr Gln Arg Ala Leu Asp Tyr Gly Val Gln Ala Gly Met Lys  
 35 40 45



Met	Ile	Glu	Gln	Met	Leu	Lys	Glu	Lys	Lys	Leu	Pro	Asp	Leu	Ser	Gly	50	55	60	
Ser	Glu	Ser	Leu	Glu	Phe	Leu	Lys	Val	Asp	Tyr	Val	Asn	Tyr	Asn	Phe	65	70	75	80
Ser	Asn	Ile	Lys	Ile	Ser	Ala	Phe	Ser	Phe	Pro	Asn	Thr	Ser	Leu	Ala	85	90	95	
Phe	Val	Pro	Gly	Val	Gly	Ile	Lys	Ala	Leu	Thr	Asn	His	Gly	Thr	Ala	100	105	110	
Asn	Ile	Ser	Thr	Asp	Trp	Gly	Phe	Glu	Ser	Pro	Leu	Phe	Val	Leu	Tyr	115	120	125	
Asn	Ser	Phe	Ala	Glu	Pro	Met	Glu	Lys	Pro	Ile	Leu	Lys	Asn	Leu	Asn	130	135	140	
Glu	Met	Leu	Cys	Pro	Ile	Ile	Ala	Ser	Glu	Val	Lys	Ala	Leu	Asn	Ala	145	150	155	160
Asn	Leu	Ser	Thr	Leu	Glu	Val	Leu	Thr	Lys	Ile	Asp	Asn	Tyr	Thr	Leu	165	170	175	
Leu	Asp	Tyr	Ser	Leu	Ile	Ser	Ser	Pro	Glu	Ile	Thr	Glu	Asn	Tyr	Leu	180	185	190	
Asp	Leu	Asn	Leu	Lys	Gly	Val	Phe	Tyr	Pro	Leu	Glu	Asn	Leu	Thr	Asp	195	200	205	
Pro	Pro	Phe	Ser	Pro	Val	Pro	Phe	Val	Leu	Pro	Glu	Arg	Ser	Asn	Ser	210	215	220	
Met	Leu	Tyr	Ile	Gly	Ile	Ala	Glu	Tyr	Phe	Phe	Lys	Ser	Ala	Ser	Phe	225	230	235	240
Ala	His	Phe	Thr	Ala	Gly	Val	Phe	Asn	Leu	Thr	Leu	Ser	Thr	Glu	Glu	245	250	255	
Ile	Ser	Asn	His	Phe	Val	Gln	Asn	Ser	Gln	Gly	Leu	Gly	Asn	Val	Leu	260	265	270	
Ser	Arg	Ile	Ala	Glu	Ile	Tyr	Ile	Leu	Ser	Gln	Pro	Phe	Met	Val	Arg	275	280	285	
Ile	Met	Ala	Thr	Glu	Pro	Pro	Ile	Ile	Asn	Leu	Gln	Pro	Gly	Asn	Phe	290	295	300	

Thr Leu Asp Ile Pro Ala Ser Ile Met Met Leu Thr Gln Pro Lys Asn  
305 310 315 320

Ser Thr Val Glu Thr Ile Val Ser Met Asp Phe Val Ala Ser Thr Ser  
325 330 335

Val Gly Leu Val Ile Leu Gly Gln Arg Leu Val Cys Ser Leu Ser Leu  
340 345 350

Asn Arg Phe Arg Leu Ala Leu Pro Glu Ser Asn Arg Ser Asn Ile Glu  
355 360 365

Val Leu Arg Phe Glu Asn Ile Leu Ser Ser Ile Leu His Phe Gly Val  
370 375 380

Leu Pro Leu Ala Asn Ala Lys Leu Gln Gln Gly Phe Pro Leu Pro Asn  
385 390 395 400

Pro His Lys Phe Leu Phe Val Asn Ser Asp Ile Glu Val Leu Glu Gly  
405 410 415

Phe Leu Leu Ile Ser Thr Asp Leu Lys Tyr Glu Thr Ser Ser Lys Gln  
420 425 430

Gln Pro Ser Phe His Val Trp Glu Gly Leu Asn Leu Ile Ser Arg Gln  
435 440 445

Trp Arg Gly Lys Ser Ala Pro  
450 455

<210> 36

<211> 23

<212> PRT

<213> Homo sapiens

<400> 36

Met Cys Thr Lys Thr Ile Pro Val Leu Trp Gly Cys Phe Leu Leu Trp  
1 5 10 15

Asn Leu Tyr Val Ser Ser Ser  
20

<210> 37

<211> 432

<212> PRT

<213> Homo sapiens

<400> 37

Gln Thr Ile Tyr Pro Gly Ile Lys Ala Arg Ile Thr Gln Arg Ala Leu  
1 5 10 15

Asp Tyr Gly Val Gln Ala Gly Met Lys Met Ile Glu Gln Met Leu Lys  
20 25 30

Glu Lys Lys Leu Pro Asp Leu Ser Gly Ser Glu Ser Leu Glu Phe Leu  
35 40 45

Lys Val Asp Tyr Val Asn Tyr Asn Phe Ser Asn Ile Lys Ile Ser Ala  
50 55 60

Phe Ser Phe Pro Asn Thr Ser Leu Ala Phe Val Pro Gly Val Gly Ile  
65 70 75 80

Lys Ala Leu Thr Asn His Gly Thr Ala Asn Ile Ser Thr Asp Trp Gly  
85 90 95

Phe Glu Ser Pro Leu Phe Val Leu Tyr Asn Ser Phe Ala Glu Pro Met  
100 105 110

Glu Lys Pro Ile Leu Lys Asn Leu Asn Glu Met Leu Cys Pro Ile Ile  
115 120 125

Ala Ser Glu Val Lys Ala Leu Asn Ala Asn Leu Ser Thr Leu Glu Val  
130 135 140

Leu Thr Lys Ile Asp Asn Tyr Thr Leu Leu Asp Tyr Ser Leu Ile Ser  
145 150 155 160

Ser Pro Glu Ile Thr Glu Asn Tyr Leu Asp Leu Asn Leu Lys Gly Val  
165 170 175

Phe Tyr Pro Leu Glu Asn Leu Thr Asp Pro Pro Phe Ser Pro Val Pro  
180 185 190

Phe Val Leu Pro Glu Arg Ser Asn Ser Met Leu Tyr Ile Gly Ile Ala  
195 200 205

Glu Tyr Phe Phe Lys Ser Ala Ser Phe Ala His Phe Thr Ala Gly Val  
210 215 220

Phe Asn Leu Thr Leu Ser Thr Glu Glu Ile Ser Asn His Phe Val Gln  
225 230 235 240

Asn Ser Gln Gly Leu Gly Asn Val Leu Ser Arg Ile Ala Glu Ile Tyr

	245		250		255										
Ile	Leu	Ser	Gln	Pro	Phe	Met	Val	Arg	Ile	Met	Ala	Thr	Glu	Pro	Pro
			260					265					270		
Ile	Ile	Asn	Leu	Gln	Pro	Gly	Asn	Phe	Thr	Leu	Asp	Ile	Pro	Ala	Ser
		275					280					285			
Ile	Met	Met	Leu	Thr	Gln	Pro	Lys	Asn	Ser	Thr	Val	Glu	Thr	Ile	Val
	290					295					300				
Ser	Met	Asp	Phe	Val	Ala	Ser	Thr	Ser	Val	Gly	Leu	Val	Ile	Leu	Gly
305					310					315					320
Gln	Arg	Leu	Val	Cys	Ser	Leu	Ser	Leu	Asn	Arg	Phe	Arg	Leu	Ala	Leu
			325						330					335	
Pro	Glu	Ser	Asn	Arg	Ser	Asn	Ile	Glu	Val	Leu	Arg	Phe	Glu	Asn	Ile
			340					345					350		
Leu	Ser	Ser	Ile	Leu	His	Phe	Gly	Val	Leu	Pro	Leu	Ala	Asn	Ala	Lys
		355					360					365			
Leu	Gln	Gln	Gly	Phe	Pro	Leu	Pro	Asn	Pro	His	Lys	Phe	Leu	Phe	Val
	370					375					380				
Asn	Ser	Asp	Ile	Glu	Val	Leu	Glu	Gly	Phe	Leu	Leu	Ile	Ser	Thr	Asp
385					390					395					400
Leu	Lys	Tyr	Glu	Thr	Ser	Ser	Lys	Gln	Gln	Pro	Ser	Phe	His	Val	Trp
			405					410					415		
Glu	Gly	Leu	Asn	Leu	Ile	Ser	Arg	Gln	Trp	Arg	Gly	Lys	Ser	Ala	Pro
		420						425					430		

<210> 38

<211> 483

<212> PRT

<213> Homo sapiens

<400> 38

Met	Ala	Arg	Gly	Pro	Cys	Asn	Ala	Pro	Arg	Trp	Val	Ser	Leu	Met	Val
1				5					10				15		

Leu Val Ala Ile Gly Thr Ala Val Thr Ala Ala Val Asn Pro Gly Val  
 20 25 30  
 Val Val Arg Ile Ser Gln Lys Gly Leu Asp Tyr Ala Ser Gln Gln Gly  
 35 40 45  
 Thr Ala Ala Leu Gln Lys Glu Leu Lys Arg Ile Lys Ile Pro Asp Tyr  
 50 55 60  
 Ser Asp Ser Phe Lys Ile Lys His Leu Gly Lys Gly His Tyr Ser Phe  
 65 70 75 80  
 Tyr Ser Met Asp Ile Arg Glu Phe Gln Leu Pro Ser Ser Gln Ile Ser  
 85 90 95  
 Met Val Pro Asn Val Gly Leu Lys Phe Ser Ile Ser Asn Ala Asn Ile  
 100 105 110  
 Lys Ile Ser Gly Lys Trp Lys Ala Gln Lys Arg Phe Leu Lys Met Ser  
 115 120 125  
 Gly Asn Phe Asp Leu Ser Ile Glu Gly Met Ser Ile Ser Ala Asp Leu  
 130 135 140  
 Lys Leu Gly Ser Asn Pro Thr Ser Gly Lys Pro Thr Ile Thr Cys Ser  
 145 150 155 160  
 Ser Cys Ser Ser His Ile Asn Ser Val His Val His Ile Ser Lys Ser  
 165 170 175  
 Lys Val Gly Trp Leu Ile Gln Leu Phe His Lys Lys Ile Glu Ser Ala  
 180 185 190  
 Leu Arg Asn Lys Met Asn Ser Gln Val Cys Glu Lys Val Thr Asn Ser  
 195 200 205  
 Val Ser Ser Lys Leu Gln Pro Tyr Phe Gln Thr Leu Pro Val Met Thr  
 210 215 220  
 Lys Ile Asp Ser Val Ala Gly Ile Asn Tyr Gly Leu Val Ala Pro Pro  
 225 230 235 240  
 Ala Thr Thr Ala Glu Thr Leu Asp Val Gln Met Lys Gly Glu Phe Tyr  
 245 250 255  
 Ser Glu Asn His His Asn Pro Pro Pro Phe Ala Pro Pro Val Met Glu  
 260 265 270

Phe Pro Ala Ala His Asp Arg Met Val Tyr Leu Gly Leu Ser Asp Tyr  
 275 280 285

Phe Phe Asn Thr Ala Gly Leu Val Tyr Gln Glu Ala Gly Val Leu Lys  
 290 295 300

Met Thr Leu Arg Asp Asp Met Ile Pro Lys Glu Ser Lys Phe Arg Leu  
 305 310 315 320

Thr Thr Lys Phe Phe Gly Thr Phe Leu Pro Glu Val Ala Lys Lys Phe  
 325 330 335

Pro Asn Met Lys Ile Gln Ile His Val Ser Ala Ser Thr Pro Pro His  
 340 345 350

Leu Ser Val Gln Pro Thr Gly Leu Thr Phe Tyr Pro Ala Val Asp Val  
 355 360 365

Gln Ala Phe Ala Val Leu Pro Asn Ser Ser Leu Ala Ser Leu Phe Leu  
 370 375 380

Ile Gly Met His Thr Thr Gly Ser Met Glu Val Ser Ala Glu Ser Asn  
 385 390 395 400

Arg Leu Val Gly Glu Leu Lys Leu Asp Arg Leu Leu Leu Glu Leu Lys  
 405 410 415

His Ser Asn Ile Gly Pro Phe Pro Val Glu Leu Leu Gln Asp Ile Met  
 420 425 430

Asn Tyr Ile Val Pro Ile Leu Val Leu Pro Arg Val Asn Glu Lys Leu  
 435 440 445

Gln Lys Gly Phe Pro Leu Pro Thr Pro Ala Arg Val Gln Leu Tyr Asn  
 450 455 460

Val Val Leu Gln Pro His Gln Asn Phe Leu Leu Phe Gly Ala Asp Val  
 465 470 475 480

Val Tyr Lys

<210> 39

<211> 481

<212> PRT

<213> Homo sapiens

<400> 39

Met Gly Ala Leu Ala Arg Ala Leu Pro Ser Ile Leu Leu Ala Leu Leu  
1 5 10 15

Leu Thr Ser Thr Pro Glu Ala Leu Gly Ala Asn Pro Gly Leu Val Ala  
20 25 30

Arg Ile Thr Asp Lys Gly Leu Gln Tyr Ala Ala Gln Glu Gly Leu Leu  
35 40 45

Ala Leu Gln Ser Glu Leu Leu Arg Ile Thr Leu Pro Asp Phe Thr Gly  
50 55 60

Asp Leu Arg Ile Pro His Val Gly Arg Gly Arg Tyr Glu Phe His Ser  
65 70 75 80

Leu Asn Ile His Glu Phe Gln Leu Pro Ser Ser Gln Ile Ser Met Val  
85 90 95

Pro Asn Val Gly Leu Lys Phe Ser Ile Ser Asn Ala Asn Ile Lys Ile  
100 105 110

Ser Gly Lys Trp Lys Ala Gln Lys Arg Phe Leu Lys Met Ser Gly Asn  
115 120 125

Phe Asp Leu Ser Ile Glu Gly Met Ser Ile Ser Ala Asp Leu Lys Leu  
130 135 140

Gly Ser Asn Pro Thr Ser Gly Lys Pro Thr Ile Thr Cys Ser Ser Cys  
145 150 155 160

Ser Ser His Ile Asn Ser Val His Val His Ile Ser Lys Ser Lys Val  
165 170 175

Gly Trp Leu Ile Gln Leu Phe His Lys Lys Ile Glu Ser Ala Leu Arg  
180 185 190

Asn Lys Met Asn Ser Gln Val Cys Glu Lys Val Thr Asn Ser Val Ser  
195 200 205

Ser Lys Leu Gln Pro Tyr Phe Gln Thr Leu Pro Val Met Thr Lys Ile  
210 215 220

Asp Ser Val Ala Gly Ile Asn Tyr Gly Leu Val Ala Pro Pro Ala Thr  
225 230 235 240

Thr Ala Glu Thr Leu Asp Val Gln Met Lys Gly Glu Phe Tyr Ser Glu  
245 250 255

Asn His His Asn Pro Pro Pro Phe Ala Pro Pro Val Met Glu Phe Pro  
 260 265 270

Ala Ala His Asp Arg Met Val Tyr Leu Gly Leu Ser Asp Tyr Phe Phe  
 275 280 285

Asn Thr Ala Gly Leu Val Tyr Gln Glu Ala Gly Val Leu Lys Met Thr  
 290 295 300

Leu Arg Asp Asp Met Ile Pro Lys Glu Ser Lys Phe Arg Leu Thr Thr  
 305 310 315 320

Lys Phe Phe Gly Thr Phe Leu Pro Glu Val Ala Lys Lys Phe Pro Asn  
 325 330 335

Met Lys Ile Gln Ile His Val Ser Ala Ser Thr Pro Pro His Leu Ser  
 340 345 350

Val Gln Pro Thr Gly Leu Thr Phe Tyr Pro Ala Val Asp Val Gln Ala  
 355 360 365

Leu Ala Val Leu Pro Asn Ser Ser Leu Ala Ser Leu Phe Leu Ile Gly  
 370 375 380

Met His Thr Thr Gly Ser Met Glu Val Ser Ala Glu Ser Asn Arg Leu  
 385 390 395 400

Val Gly Glu Leu Lys Leu Asp Arg Leu Leu Leu Glu Leu Lys His Ser  
 405 410 415

Asn Ile Gly Pro Phe Pro Val Glu Leu Leu Gln Asp Ile Met Asn Tyr  
 420 425 430

Ile Val Pro Ile Leu Val Leu Pro Arg Val Asn Glu Lys Leu Gln Lys  
 435 440 445

Gly Phe Pro Leu Pro Thr Pro Ala Arg Val Gln Leu Tyr Asn Val Val  
 450 455 460

Leu Gln Pro His Gln Asn Phe Leu Leu Phe Gly Ala Asp Val Val Tyr  
 465 470 475 480

Lys

<210> 40



<211> 383

<212> PRT

<213> *Caenorhabditis elegans*

<400> 40

Met Arg Ile Ala His Ala Ser Ser Arg Gly Asn Ile Ser Ile Phe Ser  
1 5 10 15

Val Phe Leu Ile Pro Leu Ile Ala Tyr Ile Leu Ile Leu Pro Gly Val  
20 25 30

Arg Arg Lys Arg Val Val Thr Thr Val Thr Tyr Val Leu Met Leu Ala  
35 40 45

Val Gly Gly Ala Leu Ile Ala Ser Leu Ile Tyr Pro Cys Trp Ala Ser  
50 55 60

Gly Ser Gln Met Ile Tyr Thr Gln Phe Arg Gly His Ser Asn Glu Arg  
65 70 75 80

Ile Leu Ala Lys Ile Gly Val Glu Ile Gly Leu Gln Lys Val Asn Val  
85 90 95

Thr Leu Lys Phe Glu Arg Leu Leu Ser Ser Asn Asp Val Leu Pro Gly  
100 105 110

Ser Asp Met Thr Glu Leu Tyr Tyr Asn Glu Gly Phe Asp Ile Ser Gly  
115 120 125

Ile Ser Ser Met Ala Glu Ala Leu His His Gly Leu Glu Asn Gly Leu  
130 135 140

Pro Tyr Pro Met Leu Ser Val Leu Glu Tyr Phe Ser Leu Asn Gln Asp  
145 150 155 160

Ser Phe Asp Trp Gly Arg His Tyr Arg Val Ala Gly His Tyr Thr His  
165 170 175

Ala Ala Ile Trp Phe Ala Phe Ala Cys Trp Cys Leu Ser Val Val Leu  
180 185 190

Met Leu Phe Leu Pro His Asn Ala Tyr Lys Ser Ile Leu Ala Thr Gly  
195 200 205

Ile Ser Cys Leu Ile Ala Cys Leu Val Tyr Leu Leu Leu Ser Pro Cys  
210 215 220

Glu Leu Arg Ile Ala Phe Thr Gly Glu Asn Phe Glu Arg Val Asp Leu

225 230 235 240

Thr Ala Thr Phe Ser Phe Cys Phe Tyr Leu Ile Phe Ala Ile Gly Ile  
245 250 255

Leu Cys Val Leu Cys Gly Leu Gly Leu Gly Ile Cys Glu His Trp Arg  
260 265 270

Ile Tyr Thr Leu Ser Thr Phe Leu Asp Ala Ser Leu Asp Glu His Val  
275 280 285

Gly Pro Lys Trp Lys Lys Leu Pro Thr Gly Gly Pro Ala Leu Gln Gly  
290 295 300

Val Gln Ile Gly Ala Tyr Gly Thr Asn Thr Thr Asn Ser Ser Arg Asp  
305 310 315 320

Lys Asn Asp Ile Ser Ser Asp Lys Thr Ala Gly Ser Ser Gly Phe Gln  
325 330 335

Ser Arg Thr Ser Thr Cys Gln Ser Ser Ala Ser Ser Ala Ser Leu Arg  
340 345 350

Ser Gln Ser Ser Ile Glu Thr Val His Asp Glu Ala Glu Leu Glu Arg  
355 360 365

Thr His Val His Phe Leu Gln Glu Pro Cys Ser Ser Ser Ser Thr  
370 375 380

<210> 41

<211> 399

<212> PRT

<213> Homo sapiens

<400> 41

Met Lys Met Arg Phe Leu Gly Leu Val Val Cys Leu Val Leu Trp Pro  
1 5 10 15

Leu His Ser Glu Gly Ser Gly Gly Lys Leu Thr Ala Val Asp Pro Glu  
20 25 30

Thr Asn Met Asn Val Ser Glu Ile Ile Ser Tyr Trp Gly Phe Pro Ser  
35 40 45

Glu Glu Tyr Leu Val Glu Thr Glu Asp Gly Tyr Ile Leu Cys Leu Asn  
50 55 60

Arg	Ile	Pro	His	Gly	Arg	Lys	Asn	His	Ser	Asp	Lys	Gly	Pro	Lys	Pro	65	70	75	80
Val	Val	Phe	Leu	Gln	His	Gly	Leu	Leu	Ala	Asp	Ser	Ser	Asn	Trp	Val	85	90	95	
Thr	Asn	Leu	Ala	Asn	Ser	Ser	Leu	Gly	Phe	Ile	Leu	Ala	Asp	Ala	Gly	100	105	110	
Phe	Asp	Val	Trp	Met	Gly	Asn	Ser	Arg	Gly	Asn	Thr	Trp	Ser	Arg	Lys	115	120	125	
His	Lys	Thr	Leu	Ser	Val	Ser	Gln	Asp	Glu	Phe	Trp	Ala	Phe	Ser	Tyr	130	135	140	
Asp	Glu	Met	Ala	Lys	Tyr	Asp	Leu	Pro	Ala	Ser	Ile	Asn	Phe	Ile	Leu	145	150	155	160
Asn	Lys	Thr	Gly	Gln	Glu	Gln	Val	Tyr	Tyr	Val	Gly	His	Ser	Gln	Gly	165	170	175	
Thr	Thr	Ile	Gly	Phe	Ile	Ala	Phe	Ser	Gln	Ile	Pro	Glu	Leu	Ala	Lys	180	185	190	
Arg	Ile	Lys	Met	Phe	Phe	Ala	Leu	Gly	Pro	Val	Ala	Ser	Val	Ala	Phe	195	200	205	
Cys	Thr	Ser	Pro	Met	Ala	Lys	Leu	Gly	Arg	Leu	Pro	Asp	His	Leu	Ile	210	215	220	
Lys	Asp	Leu	Phe	Gly	Asp	Lys	Glu	Phe	Leu	Pro	Gln	Ser	Ala	Phe	Leu	225	230	235	240
Lys	Trp	Leu	Gly	Thr	His	Val	Cys	Thr	His	Val	Ile	Leu	Lys	Glu	Leu	245	250	255	
Cys	Gly	Asn	Leu	Cys	Phe	Leu	Leu	Cys	Gly	Phe	Asn	Glu	Arg	Asn	Leu	260	265	270	
Asn	Met	Ser	Arg	Val	Asp	Val	Tyr	Thr	Thr	His	Ser	Pro	Ala	Gly	Thr	275	280	285	
Ser	Val	Gln	Asn	Met	Leu	His	Trp	Ser	Gln	Ala	Val	Lys	Phe	Gln	Lys	290	295	300	
Phe	Gln	Ala	Phe	Asp	Trp	Gly	Ser	Ser	Ala	Lys	Asn	Tyr	Phe	His	Tyr	305	310	315	320

Asn Gln Ser Tyr Pro Pro Thr Tyr Asn Val Lys Asp Met Leu Val Pro  
 325 330 335

Thr Ala Val Trp Ser Gly Gly His Asp Trp Leu Ala Asp Val Tyr Asp  
 340 345 350

Val Asn Ile Leu Leu Thr Gln Ile Thr Asn Leu Val Phe His Glu Ser  
 355 360 365

Ile Pro Glu Trp Glu His Leu Asp Phe Ile Trp Gly Leu Asp Ala Pro  
 370 375 380

Trp Arg Leu Tyr Asn Lys Ile Ile Asn Leu Met Arg Lys Tyr Gln  
 385 390 395

<210> 42

<211> 19

<212> PRT

<213> Mus sp.

<400> 42

Met Ala Pro Pro Ala Ala Arg Leu Ala Leu Leu Ser Ala Ala Ala Leu  
 1 5 10 15

Thr Leu Ala

<210> 43

<211> 451

<212> PRT

<213> Mus sp.

<400> 43

Ala Arg Pro Ala Pro Gly Pro Arg Ser Gly Pro Glu Cys Phe Thr Ala  
 1 5 10 15

Asn Gly Ala Asp Tyr Arg Gly Thr Gln Ser Trp Thr Ala Leu Gln Gly  
 20 25 30

Gly Lys Pro Cys Leu Phe Trp Asn Glu Thr Phe Gln His Pro Tyr Asn  
 35 40 45

Thr Leu Lys Tyr Pro Asn Gly Glu Gly Gly Leu Gly Glu His Asn Tyr  
 50 55 60

Cys Arg Asn Pro Asp Gly Asp Val Ser Pro Trp Cys Tyr Val Ala Glu

65

70

75

80

His Glu Asp Gly Val Tyr Trp Lys Tyr Cys Glu Ile Pro Ala Cys Gln  
85 90 95

Met Pro Gly Asn Leu Gly Cys Tyr Lys Asp His Gly Asn Pro Pro Pro  
100 105 110

Leu Thr Gly Thr Ser Lys Thr Ser Asn Lys Leu Thr Ile Gln Thr Cys  
115 120 125

Ile Ser Phe Cys Arg Ser Gln Arg Phe Lys Phe Ala Gly Met Glu Ser  
130 135 140

Gly Tyr Ala Cys Phe Cys Gly Asn Asn Pro Asp Tyr Trp Lys His Gly  
145 150 155 160

Glu Ala Ala Ser Thr Glu Cys Asn Ser Val Cys Phe Gly Asp His Thr  
165 170 175

Gln Pro Cys Gly Gly Asp Gly Arg Ile Ile Leu Phe Asp Thr Leu Val  
180 185 190

Gly Ala Cys Gly Gly Asn Tyr Ser Ala Met Ala Ala Val Val Tyr Ser  
195 200 205

Pro Asp Phe Pro Asp Thr Tyr Ala Thr Gly Arg Val Cys Tyr Trp Thr  
210 215 220

Ile Arg Val Pro Gly Ala Ser Arg Ile His Phe Asn Phe Thr Leu Phe  
225 230 235 240

Asp Ile Arg Asp Ser Ala Asp Met Val Glu Leu Leu Asp Gly Tyr Thr  
245 250 255

His Arg Val Leu Val Arg Leu Ser Gly Arg Ser Arg Pro Pro Leu Ser  
260 265 270

Phe Asn Val Ser Leu Asp Phe Val Ile Leu Tyr Phe Phe Ser Asp Arg  
275 280 285

Ile Asn Gln Ala Gln Gly Phe Ala Val Leu Tyr Gln Ala Thr Lys Glu  
290 295 300

Glu Pro Pro Gln Glu Arg Pro Ala Val Asn Gln Thr Leu Ala Glu Val  
305 310 315 320

Ile Thr Glu Gln Ala Asn Leu Ser Val Ser Ala Ala His Ser Ser Lys

325

330

335

Val Leu Tyr Val Ile Thr Pro Ser Pro Ser His Pro Pro Gln Thr Ala  
340 345 350

Gln Val Ala Ile Pro Gly His Arg Gln Leu Gly Pro Thr Ala Thr Glu  
355 360 365

Trp Lys Asp Gly Leu Cys Thr Ala Trp Arg Pro Ser Ser Ser Ser Gln  
370 375 380

Ser Gln Gln Leu Ser Gln Arg Phe Phe Cys Met Ser His Leu Asn Leu  
385 390 395 400

Ile Glu Ser Leu His Gln Glu Thr Leu Gly Thr Val Val Ser Leu Gly  
405 410 415

Leu Leu Glu Ile Ser Gly Pro Phe Ser Met Asn Leu Pro Leu Gln Ser  
420 425 430

Pro Ser Leu Arg Arg Ser Ser Arg Val Arg Val Asn Lys Met Thr Ala  
435 440 445

Ile Pro Ser  
450

<210> 44

<211> 150

<212> PRT

<213> Mus sp.

<400> 44

Lys Lys His Cys Trp Tyr Phe Glu Gly Leu Tyr Pro Thr Tyr Tyr Ile  
1 5 10 15

Cys Arg Ser Tyr Glu Asp Cys Cys Gly Ser Arg Cys Cys Val Arg Ala  
20 25 30

Leu Ser Ile Gln Arg Leu Trp Tyr Phe Trp Phe Leu Leu Met Met Gly  
35 40 45

Val Leu Phe Cys Cys Gly Ala Gly Phe Phe Ile Arg Arg Arg Met Tyr  
50 55 60

Pro Pro Pro Leu Ile Glu Glu Pro Thr Phe Asn Val Ser Tyr Thr Arg  
65 70 75 80

Gln Pro Pro Asn Pro Ala Pro Gly Ala Gln Gln Met Gly Pro Pro Tyr  
85 90 95

Tyr Thr Asp Pro Gly Gly Pro Gly Met Asn Pro Val Gly Asn Thr Met  
100 105 110

Ala Met Ala Phe Gln Val Gln Pro Asn Ser Pro His Gly Gly Thr Thr  
115 120 125

Tyr Pro Pro Pro Pro Ser Tyr Cys Asn Thr Pro Pro Pro Pro Tyr Glu  
130 135 140

Gln Val Val Lys Asp Lys  
145 150

<210> 45

<211> 2044

<212> DNA

<213> Homo sapiens

<400> 45

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 ctcagaataa ggccaagttt tatagttgca tctcaggga gaaaatttta taggatgttt 1980  
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 ccgc 2044

<210> 46

<211> 1269

<212> DNA

<213> Homo sapiens

<400> 46

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 gagctggctc agaaaatcaa aatgtatttt gctttagcac ccatagccac tgtaagcat 660  
 gcaaaaagcc ccgggaccaa atttttggtg ctgccagata tgatgatcaa gggattgttt 720  
 ggcaaaaaag aatttctgta tcagaccaga tttctcagac aacttggtat ttacctttgt 780  
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<210> 47

<211> 423

<212> PRT

<213> Homo sapiens

<400> 47

Met Leu Glu Thr Leu Ser Arg Gln Trp Ile Val Ser His Arg Met Glu

1

5

10

15



Met Trp Leu Leu Ile Leu Val Ala Tyr Met Phe Gln Arg Asn Val Asn  
20 25 30

Ser Val His Met Pro Thr Lys Ala Val Asp Pro Glu Ala Phe Met Asn  
35 40 45

Ile Ser Glu Ile Ile Gln His Gln Gly Tyr Pro Cys Glu Glu Tyr Glu  
50 55 60

Val Ala Thr Glu Asp Gly Tyr Ile Leu Ser Val Asn Arg Ile Pro Arg  
65 70 75 80

Gly Leu Val Gln Pro Lys Lys Thr Gly Ser Arg Pro Val Val Leu Leu  
85 90 95

Gln His Gly Leu Val Gly Gly Ala Ser Asn Trp Ile Ser Asn Leu Pro  
100 105 110

Asn Asn Ser Leu Gly Phe Ile Leu Ala Asp Ala Gly Phe Asp Val Trp  
115 120 125

Met Gly Asn Ser Arg Gly Asn Ala Trp Ser Arg Lys His Lys Thr Leu  
130 135 140

Ser Ile Asp Gln Asp Glu Phe Trp Ala Phe Ser Tyr Asp Glu Met Ala  
145 150 155 160

Arg Phe Asp Leu Pro Ala Val Ile Asn Phe Ile Leu Gln Lys Thr Gly  
165 170 175

Gln Glu Lys Ile Tyr Tyr Val Gly Tyr Ser Gln Gly Thr Thr Met Gly  
180 185 190

Phe Ile Ala Phe Ser Thr Met Pro Glu Leu Ala Gln Lys Ile Lys Met  
195 200 205

Tyr Phe Ala Leu Ala Pro Ile Ala Thr Val Lys His Ala Lys Ser Pro  
210 215 220

Gly Thr Lys Phe Leu Leu Leu Pro Asp Met Met Ile Lys Gly Leu Phe  
225 230 235 240

Gly Lys Lys Glu Phe Leu Tyr Gln Thr Arg Phe Leu Arg Gln Leu Val  
245 250 255

Ile Tyr Leu Cys Gly Gln Val Ile Leu Asp Gln Ile Cys Ser Asn Ile  
260 265 270

Met Leu Leu Leu Gly Gly Phe Asn Thr Asn Asn Met Asn Met Ser Arg  
275 280 285

Ala Ser Val Tyr Ala Ala His Thr Leu Ala Gly Thr Ser Val Gln Asn  
290 295 300

Ile Leu His Trp Ser Gln Ala Val Asn Ser Gly Glu Leu Arg Ala Phe  
305 310 315 320

Asp Trp Gly Ser Glu Thr Lys Asn Leu Glu Lys Cys Asn Gln Pro Thr  
325 330 335

Pro Val Arg Tyr Arg Val Arg Asp Met Thr Val Pro Thr Ala Met Trp  
340 345 350

Thr Gly Gly Gln Asp Trp Leu Ser Asn Pro Glu Asp Val Lys Met Leu  
355 360 365

Leu Ser Glu Val Thr Asn Leu Ile Tyr His Lys Asn Ile Pro Glu Trp  
370 375 380

Ala His Val Asp Phe Ile Trp Gly Leu Asp Ala Pro His Arg Met Tyr  
385 390 395 400

Asn Glu Ile Ile His Leu Met Gln Gln Glu Glu Thr Asn Leu Ser Gln  
405 410 415

Gly Arg Cys Glu Ala Val Leu  
420

<210> 48

<211> 33

<212> PRT

<213> Homo sapiens

<400> 48

Met Leu Glu Thr Leu Ser Arg Gln Trp Ile Val Ser His Arg Met Glu  
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Met Trp Leu Leu Ile Leu Val Ala Tyr Met Phe Gln Arg Asn Val Asn  
20 25 30

Ser

<210> 49

[illegible]

Val His Met Pro Thr Lys Ala Val Asp Pro Glu Ala Phe Met Asn Ile  
1 5 10 15

Ala Thr Glu Asp Gly Tyr Ile Leu Ser Val Asn Arg Ile Pro Arg Gly  
35 40 45

Leu Val Gln Pro Lys Lys Thr Gly Ser Arg Pro Val Val Leu Leu Gln  
50 55 60

His Gly Leu Val Gly Gly Ala Ser Asn Trp Ile Ser Asn Leu Pro Asn  
65 70 75 80

Asn Ser Leu Gly Phe Ile Leu Ala Asp Ala Gly Phe Asp Val Trp Met  
85 90 95

Gly Asn Ser Arg Gly Asn Ala Trp Ser Arg Lys His Lys Thr Leu Ser  
100 105 110

Ile Asp Gln Asp Glu Phe Trp Ala Phe Ser Tyr Asp Glu Met Ala Arg  
115 120 125

Phe Asp Leu Pro Ala Val Ile Asn Phe Ile Leu Gln Lys Thr Gly Gln  
130 135 140

Glu Lys Ile Tyr Tyr Val Gly Tyr Ser Gln Gly Thr Thr Met Gly Phe  
145 150 155 160

Ile Ala Phe Ser Thr Met Pro Glu Leu Ala Gln Lys Ile Lys Met Tyr  
165 170 175

Phe Ala Leu Ala Pro Ile Ala Thr Val Lys His Ala Lys Ser Pro Gly  
180 185 190

Thr Lys Phe Leu Leu Leu Pro Asp Met Met Ile Lys Gly Leu Phe Gly  
195 200 205

Lys Lys Glu Phe Leu Tyr Gln Thr Arg Phe Leu Arg Gln Leu Val Ile  
210 215 220

67

225	230	235	240
Leu Leu Leu Gly Gly Phe Asn Thr Asn Asn Met Asn Met Ser Arg Ala			
245	250	255	
Ser Val Tyr Ala Ala His Thr Leu Ala Gly Thr Ser Val Gln Asn Ile			
260	265	270	
Leu His Trp Ser Gln Ala Val Asn Ser Gly Glu Leu Arg Ala Phe Asp			
275	280	285	
Trp Gly Ser Glu Thr Lys Asn Leu Glu Lys Cys Asn Gln Pro Thr Pro			
290	295	300	
Val Arg Tyr Arg Val Arg Asp Met Thr Val Pro Thr Ala Met Trp Thr			
305	310	315	320
Gly Gly Gln Asp Trp Leu Ser Asn Pro Glu Asp Val Lys Met Leu Leu			
325	330	335	
Ser Glu Val Thr Asn Leu Ile Tyr His Lys Asn Ile Pro Glu Trp Ala			
340	345	350	
His Val Asp Phe Ile Trp Gly Leu Asp Ala Pro His Arg Met Tyr Asn			
355	360	365	
Glu Ile Ile His Leu Met Gln Gln Glu Glu Thr Asn Leu Ser Gln Gly			
370	375	380	
Arg Cys Glu Ala Val Leu			
385	390		

<210> 50

<211> 221

<212> PRT

<213> Homo sapiens

<400> 50

Val His Met Pro Thr Lys Ala Val Asp Pro Glu Ala Phe Met Asn Ile
1 5 10 15

Ser Glu Ile Ile Gln His Gln Gly Tyr Pro Cys Glu Glu Tyr Glu Val
20 25 30

Ala Thr Glu Asp Gly Tyr Ile Leu Ser Val Asn Arg Ile Pro Arg Gly
35 40 45

Leu Val Gln Pro Lys Lys Thr Gly Ser Arg Pro Val Val Leu Leu Gln  
 50 55 60

His Gly Leu Val Gly Gly Ala Ser Asn Trp Ile Ser Asn Leu Pro Asn  
 65 70 75 80

Asn Ser Leu Gly Phe Ile Leu Ala Asp Ala Gly Phe Asp Val Trp Met  
 85 90 95

Gly Asn Ser Arg Gly Asn Ala Trp Ser Arg Lys His Lys Thr Leu Ser  
 100 105 110

Ile Asp Gln Asp Glu Phe Trp Ala Phe Ser Tyr Asp Glu Met Ala Arg  
 115 120 125

Phe Asp Leu Pro Ala Val Ile Asn Phe Ile Leu Gln Lys Thr Gly Gln  
 130 135 140

Glu Lys Ile Tyr Tyr Val Gly Tyr Ser Gln Gly Thr Thr Met Gly Phe  
 145 150 155 160

Ile Ala Phe Ser Thr Met Pro Glu Leu Ala Gln Lys Ile Lys Met Tyr  
 165 170 175

Phe Ala Leu Ala Pro Ile Ala Thr Val Lys His Ala Lys Ser Pro Gly  
 180 185 190

Thr Lys Phe Leu Leu Leu Pro Asp Met Met Ile Lys Gly Leu Phe Gly  
 195 200 205

Lys Lys Glu Phe Leu Tyr Gln Thr Arg Phe Leu Arg Gln  
 210 215 220

<210> 51

<211> 25

<212> PRT

<213> Homo sapiens

<400> 51

Leu Val Ile Tyr Leu Cys Gly Gln Val Ile Leu Asp Gln Ile Cys Ser  
 1 5 10 15

Asn Ile Met Leu Leu Leu Gly Gly Phe  
 20 25

<210> 52

<211> 144  
 <212> PRT  
 <213> Homo sapiens

<400> 52

Asn	Thr	Asn	Asn	Met	Asn	Met	Ser	Arg	Ala	Ser	Val	Tyr	Ala	Ala	His
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Thr	Leu	Ala	Gly	Thr	Ser	Val	Gln	Asn	Ile	Leu	His	Trp	Ser	Gln	Ala
			20					25					30		
Val	Asn	Ser	Gly	Glu	Leu	Arg	Ala	Phe	Asp	Trp	Gly	Ser	Glu	Thr	Lys
			35				40					45			
Asn	Leu	Glu	Lys	Cys	Asn	Gln	Pro	Thr	Pro	Val	Arg	Tyr	Arg	Val	Arg
	50					55					60				
Asp	Met	Thr	Val	Pro	Thr	Ala	Met	Trp	Thr	Gly	Gly	Gln	Asp	Trp	Leu
65					70					75					80
Ser	Asn	Pro	Glu	Asp	Val	Lys	Met	Leu	Leu	Ser	Glu	Val	Thr	Asn	Leu
				85					90					95	
Ile	Tyr	His	Lys	Asn	Ile	Pro	Glu	Trp	Ala	His	Val	Asp	Phe	Ile	Trp
			100					105					110		
Gly	Leu	Asp	Ala	Pro	His	Arg	Met	Tyr	Asn	Glu	Ile	Ile	His	Leu	Met
		115					120					125			
Gln	Gln	Glu	Glu	Thr	Asn	Leu	Ser	Gln	Gly	Arg	Cys	Glu	Ala	Val	Leu
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<210> 53  
 <211> 2133  
 <212> DNA  
 <213> Homo sapiens

<400> 53

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tatgctgagg	agtgtgcaaa	ggctctggag	aaggggctgc	cagaccctgt	gttgtaccta	540
gctgagaagt	tactccaag	aagcccatgt	ggcctatacc	gccagtaccg	cctggcggga	600
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<210> 54

<211> 1029

<212> DNA

<213> Homo sapiens

<400> 54

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ttattcatcg	gggctgcaat	cctggctgtg	aatttcagtt	ctgagtgggt	tgtgggccag	240
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gagtgtgcaa	aggctctgga	gaaggggctg	ccagaccctg	tgttgtacct	agctgagaag	480
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cctgtgctgg	tatatggtgg	ctacatgcta	ttggccacgg	gcattctcca	gctgttggt	660

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tgtgcttta 1029

<210> 55

<211> 343

<212> PRT

<213> Homo sapiens

<400> 55

Met Ala Thr Leu Gly His Thr Phe Pro Phe Tyr Ala Gly Pro Lys Pro  
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Thr Phe Pro Met Asp Thr Thr Leu Ala Ser Ile Ile Met Ile Phe Leu  
20 25 30

Thr Ala Leu Ala Thr Phe Ile Val Ile Leu Pro Gly Ile Arg Gly Lys  
35 40 45

Thr Arg Leu Phe Trp Leu Leu Arg Val Val Thr Ser Leu Phe Ile Gly  
50 55 60

Ala Ala Ile Leu Ala Val Asn Phe Ser Ser Glu Trp Ser Val Gly Gln  
65 70 75 80

Val Ser Thr Asn Thr Ser Tyr Lys Ala Phe Ser Ser Glu Trp Ile Ser  
85 90 95

Ala Asp Ile Gly Leu Gln Val Gly Leu Gly Gly Val Asn Ile Thr Leu  
100 105 110

Thr Gly Thr Pro Val Gln Gln Leu Asn Glu Thr Ile Asn Tyr Asn Glu  
115 120 125

Glu Phe Thr Trp Arg Leu Gly Glu Asn Tyr Ala Glu Glu Cys Ala Lys  
130 135 140

Ala Leu Glu Lys Gly Leu Pro Asp Pro Val Leu Tyr Leu Ala Glu Lys  
145 150 155 160

Phe Thr Pro Arg Ser Pro Cys Gly Leu Tyr Arg Gln Tyr Arg Leu Ala  
165 170 175

Gly His Tyr Thr Ser Ala Met Leu Trp Val Ala Phe Leu Cys Trp Leu



180	185	190
Leu Ala Asn Val Met Leu Ser Met Pro Val Leu Val Tyr Gly Gly Tyr		
195	200	205
Met Leu Leu Ala Thr Gly Ile Phe Gln Leu Leu Ala Leu Leu Phe Phe		
210	215	220
Ser Met Ala Thr Ser Leu Thr Ser Pro Cys Pro Leu His Leu Gly Ala		
225	230	235 240
Ser Val Leu His Thr His His Gly Pro Ala Phe Trp Ile Thr Leu Thr		
	245	250 255
Thr Gly Leu Leu Cys Val Leu Leu Gly Leu Ala Met Ala Val Ala His		
	260	265 270
Arg Met Gln Pro His Arg Leu Lys Ala Phe Phe Asn Gln Ser Val Asp		
	275	280 285
Glu Asp Pro Met Leu Glu Trp Ser Pro Glu Glu Gly Gly Leu Leu Ser		
	290	295 300
Pro Arg Tyr Arg Ser Met Ala Asp Ser Pro Lys Ser Gln Asp Ile Pro		
	305	310 315 320
Leu Ser Glu Ala Ser Ser Thr Lys Ala Tyr Cys Lys Glu Ala His Pro		
	325	330 335
Lys Asp Pro Asp Cys Ala Leu		
	340	

<210> 56

<211> 23

<212> PRT

<213> Homo sapiens

<400> 56

Met Ala Thr Leu Gly His Thr Phe Pro Phe Tyr Ala Gly Pro Lys Pro
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Thr Phe Pro Met Asp Thr Thr
20

<210> 57

<211> 112

<212> PRT

<213> Homo sapiens

<400> 57

Asn Phe Ser Ser Glu Trp Ser Val Gly Gln Val Ser Thr Asn Thr Ser  
1 5 10 15

Tyr Lys Ala Phe Ser Ser Glu Trp Ile Ser Ala Asp Ile Gly Leu Gln  
20 25 30

Val Gly Leu Gly Gly Val Asn Ile Thr Leu Thr Gly Thr Pro Val Gln  
35 40 45

Gln Leu Asn Glu Thr Ile Asn Tyr Asn Glu Glu Phe Thr Trp Arg Leu  
50 55 60

Gly Glu Asn Tyr Ala Glu Glu Cys Ala Lys Ala Leu Glu Lys Gly Leu  
65 70 75 80

Pro Asp Pro Val Leu Tyr Leu Ala Glu Lys Phe Thr Pro Arg Ser Pro  
85 90 95

Cys Gly Leu Tyr Arg Gln Tyr Arg Leu Ala Gly His Tyr Thr Ser Ala  
100 105 110

<210> 58

<211> 22

<212> PRT

<213> Homo sapiens

<400> 58

Thr Ser Leu Thr Ser Pro Cys Pro Leu His Leu Gly Ala Ser Val Leu  
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<210> 59

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<212> PRT

<213> Homo sapiens

<400> 59

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<212> PRT

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<400> 60

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<213> Homo sapiens

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<213> Homo sapiens

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<400> 65

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<211> 72

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<213> Homo sapiens

<400> 66

His Arg Met Gln Pro His Arg Leu Lys Ala Phe Phe Asn Gln Ser Val  
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Pro Lys Asp Pro Asp Cys Ala Leu  
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<210> 67  
<211> 4928  
<212> DNA  
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<400> 67.

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<210> 68

<211> 1410

<212> DNA

<213> Mus sp.

<400> 68

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<211> 470

<212> PRT

<213> Mus sp.

<400> 69

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Leu Gln Gly Gly Lys Pro Cys Leu Phe Trp Asn Glu Thr Phe Gln His
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His Asn Tyr Cys Arg Asn Pro Asp Gly Asp Val Ser Pro Trp Cys Tyr  
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Val Ala Glu His Glu Asp Gly Val Tyr Trp Lys Tyr Cys Glu Ile Pro  
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Ala Cys Gln Met Pro Gly Asn Leu Gly Cys Tyr Lys Asp His Gly Asn  
 115 120 125

Pro Pro Pro Leu Thr Gly Thr Ser Lys Thr Ser Asn Lys Leu Thr Ile  
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Gln Thr Cys Ile Ser Phe Cys Arg Ser Gln Arg Phe Lys Phe Ala Gly  
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Met Glu Ser Gly Tyr Ala Cys Phe Cys Gly Asn Asn Pro Asp Tyr Trp  
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Lys His Gly Glu Ala Ala Ser Thr Glu Cys Asn Ser Val Cys Phe Gly  
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Asp His Thr Gln Pro Cys Gly Gly Asp Gly Arg Ile Ile Leu Phe Asp  
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Thr Leu Val Gly Ala Cys Gly Gly Asn Tyr Ser Ala Met Ala Ala Val  
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Val Tyr Ser Pro Asp Phe Pro Asp Thr Tyr Ala Thr Gly Arg Val Cys  
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Tyr Trp Thr Ile Arg Val Pro Gly Ala Ser Arg Ile His Phe Asn Phe  
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Thr Leu Phe Asp Ile Arg Asp Ser Ala Asp Met Val Glu Leu Leu Asp  
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Gly Tyr Thr His Arg Val Leu Val Arg Leu Ser Gly Arg Ser Arg Pro  
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Pro Leu Ser Phe Asn Val Ser Leu Asp Phe Val Ile Leu Tyr Phe Phe  
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Ser Asp Arg Ile Asn Gln Ala Gln Gly Phe Ala Val Leu Tyr Gln Ala  
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Thr Lys Glu Glu Pro Pro Gln Glu Arg Pro Ala Val Asn Gln Thr Leu  
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Ala Glu Val Ile Thr Glu Gln Ala Asn Leu Ser Val Ser Ala Ala His  
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Ser Ser Lys Val Leu Tyr Val Ile Thr Pro Ser Pro Ser His Pro Pro  
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Gln Thr Ala Gln Val Ala Ile Pro Gly His Arg Gln Leu Gly Pro Thr  
 370 375 380

Ala Thr Glu Trp Lys Asp Gly Leu Cys Thr Ala Trp Arg Pro Ser Ser  
 385 390 395 400

Ser Ser Gln Ser Gln Gln Leu Ser Gln Arg Phe Phe Cys Met Ser His  
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Leu Asn Leu Ile Glu Ser Leu His Gln Glu Thr Leu Gly Thr Val Val  
 420 425 430

Ser Leu Gly Leu Leu Glu Ile Ser Gly Pro Phe Ser Met Asn Leu Pro  
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Leu Gln Ser Pro Ser Leu Arg Arg Ser Ser Arg Val Arg Val Asn Lys  
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Met Thr Ala Ile Pro Ser  
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<210> 70

<211> 760

<212> PRT

<213> Mus sp.

<400> 70

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Thr Gly Gly Gln Gly Pro Met Pro Arg Val Lys Tyr His Ala Gly Asp  
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Gly His Arg Ala Leu Ser Phe Phe Gln Gln Lys Gly Leu Arg Asp Phe  
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Asp Thr Leu Leu Leu Ser Asp Asp Gly Asn Thr Leu Tyr Val Gly Ala  
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Arg Glu Thr Val Leu Ala Leu Asn Ile Gln Asn Pro Gly Ile Pro Arg  
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Leu Lys Asn Met Ile Pro Trp Pro Ala Ser Glu Arg Lys Lys Thr Glu  
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Cys Ala Phe Lys Lys Lys Ser Asn Glu Thr Gln Cys Phe Asn Phe Ile  
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Arg Val Leu Val Ser Tyr Asn Ala Thr His Leu Tyr Ala Cys Gly Thr  
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Phe Ala Phe Ser Pro Ala Cys Thr Phe Ile Glu Leu Gln Asp Ser Leu  
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Leu Leu Pro Ile Leu Ile Asp Lys Val Met Asp Gly Lys Gly Gln Ser  
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Pro Leu Thr Leu Phe Thr Ser Thr Gln Ala Val Leu Val Asp Gly Met  
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Leu Tyr Ser Gly Thr Met Asn Asn Phe Leu Gly Ser Glu Pro Ile Leu  
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Met Arg Thr Leu Gly Ser His Pro Val Leu Lys Thr Asp Ile Phe Leu  
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Arg Trp Leu His Ala Asp Ala Ser Phe Val Ala Ala Ile Pro Ser Thr  
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Gln Val Val Tyr Phe Phe Phe Glu Glu Thr Ala Ser Glu Phe Asp Phe  
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Val Gly Gly Glu Lys Leu Leu Gln Lys Lys Trp Thr Thr Phe Leu Lys  
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Ala Gln Leu Leu Cys Ala Gln Pro Gly Gln Leu Pro Phe Asn Ile Ile  
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Arg His Ala Val Leu Leu Pro Ala Asp Ser Pro Ser Val Ser Arg Ile  
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Tyr Ala Val Phe Thr Ser Gln Trp Gln Val Gly Gly Thr Arg Ser Ser  
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Ala Val Cys Ala Phe Ser Leu Thr Asp Ile Glu Arg Val Phe Lys Gly  
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Lys Tyr Lys Glu Leu Asn Lys Glu Thr Ser Arg Trp Thr Thr Tyr Arg  
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Gly Ser Glu Val Ser Pro Arg Pro Gly Ser Cys Ser Met Gly Pro Ser  
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Ser Asp Lys Ala Leu Thr Phe Met Lys Asp His Phe Leu Met Asp Glu  
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Arg Leu Ala Val Glu Ser Ala Arg Gly Leu Asp Gly Ser Ser His Val  
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Val Met Tyr Leu Gly Thr Ser Thr Gly Pro Leu His Lys Ala Val Val  
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Pro Gln Asp Ser Ser Ala Tyr Leu Val Glu Glu Ile Gln Leu Ser Pro  
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Cys Ser Val Tyr Glu Ser Cys Val Asp Cys Val Leu Ala Arg Asp Pro  
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580 585 590

Gly Arg Ala Lys Ile Ser Glu Ala Ser Ala Thr Val Tyr Asn Gly Ser  
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Met Ala Ala Gln Arg Ser Tyr Trp Pro His Phe Leu Ile Val Thr Val  
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Leu Pro Pro Arg Glu Lys Ala Pro Leu Ser Arg Asp Gln His Leu Gln  
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<211> 3046

<212> DNA

<213> Mus sp.

<400> 71

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 <212> DNA  
 <213> Mus sp.

<400> -72

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<211> 516

<212> DNA

<213> Mus sp.

<400> 73

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<212> PRT

<213> Mus sp.

<400> 74

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Tyr Pro Thr Tyr Tyr Ile Cys Arg Ser Tyr Glu Asp Cys Cys Gly Ser  
35 40 45

Arg Cys Cys Val Arg Ala Leu Ser Ile Gln Arg Leu Trp Tyr Phe Trp  
50 55 60

Phe Leu Leu Met Met Gly Val Leu Phe Cys Cys Gly Ala Gly Phe Phe  
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Ile Arg Arg Arg Met Tyr Pro Pro Pro Leu Ile Glu Glu Pro Thr Phe  
85 90 95

Asn Val Ser Tyr Thr Arg Gln Pro Pro Asn Pro Ala Pro Gly Ala Gln  
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Gln Met Gly Pro Pro Tyr Tyr Thr Asp Pro Gly Gly Pro Gly Met Asn  
 115 120 125

Pro Val Gly Asn Thr Met Ala Met Ala Phe Gln Val Gln Pro Asn Ser  
 130 135 140

Pro His Gly Gly Thr Thr Tyr Pro Pro Pro Pro Ser Tyr Cys Asn Thr  
 145 150 155 160

Pro Pro Pro Pro Tyr Glu Gln Val Val Lys Asp Lys  
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<210> 75

<211> 398

<212> PRT

<213> Homo sapiens

<400> 75

Met Trp Leu Leu Leu Thr Met Ala Ser Leu Ile Ser Val Leu Gly Thr  
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Thr His Gly Leu Phe Gly Lys Leu His Pro Gly Ser Pro Glu Val Thr  
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Met Asn Ile Ser Gln Met Ile Thr Tyr Trp Gly Tyr Pro Asn Glu Glu  
 35 40 45

Tyr Glu Val Val Thr Glu Asp Gly Tyr Ile Leu Glu Val Asn Arg Ile  
 50 55 60

Pro Tyr Gly Lys Lys Asn Ser Gly Asn Thr Gly Gln Arg Pro Val Val  
 65 70 75 80

Phe Leu Gln His Gly Leu Leu Ala Ser Ala Thr Asn Trp Ile Ser Asn  
 85 90 95

Leu Pro Asn Asn Ser Leu Ala Phe Ile Leu Ala Asp Ala Gly Tyr Asp  
 100 105 110

Val Trp Leu Gly Asn Ser Arg Gly Asn Thr Trp Ala Arg Arg Asn Leu  
 115 120 125

Tyr Tyr Ser Pro Asp Ser Val Glu Phe Trp Ala Phe Ser Phe Asp Glu  
 130 135 140



Met Ala Lys Tyr Asp Leu Pro Ala Thr Ile Asp Phe Ile Val Lys Lys  
 145 150 155 160  
 Thr Gly Gln Lys Gln Leu His Tyr Val Gly His Ser Gln Gly Thr Thr  
 165 170 175  
 Ile Gly Phe Ile Ala Phe Ser Thr Asn Pro Ser Leu Ala Lys Arg Ile  
 180 185 190  
 Lys Thr Phe Tyr Ala Leu Ala Pro Val Ala Thr Val Lys Tyr Thr Lys  
 195 200 205  
 Ser Leu Ile Asn Lys Leu Arg Phe Val Pro Gln Ser Leu Phe Lys Phe  
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 Ile Phe Gly Asp Lys Ile Phe Tyr Pro His Asn Phe Phe Asp Gln Phe  
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 Asn Ala Leu Phe Ile Ile Cys Gly Phe Asp Ser Lys Asn Phe Asn Thr  
 260 265 270  
 Ser Arg Leu Asp Val Tyr Leu Ser His Asn Pro Ala Gly Thr Ser Val  
 275 280 285  
 Gln Asn Met Phe His Trp Thr Gln Ala Val Lys Ser Gly Lys Phe Gln  
 290 295 300  
 Ala Tyr Asp Trp Gly Ser Pro Val Gln Asn Arg Met His Tyr Asp Gln  
 305 310 315 320  
 Ser Gln Pro Pro Tyr Tyr Asn Val Thr Ala Met Asn Val Pro Ile Ala  
 325 330 335  
 Val Trp Asn Gly Gly Lys Asp Leu Leu Ala Asp Pro Gln Asp Val Gly  
 340 345 350  
 Leu Leu Leu Pro Lys Leu Pro Asn Leu Ile Tyr His Lys Glu Ile Pro  
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 Phe Tyr Asn His Leu Asp Phe Ile Trp Ala Met Asp Ala Pro Gln Glu  
 370 375 380  
 Val Tyr Asn Asp Ile Val Ser Met Ile Ser Glu Asp Lys Lys  
 385 390 395

<210> 76  
 <211> 760  
 <212> PRT  
 <213> Mus sp.

<400> 76

Met Ala Leu Pro Ser Leu Gly Gln Asp Ser Trp Ser Leu Leu Arg Val  
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Thr Gly Gly Gln Gly Pro Met Pro Arg Val Lys Tyr His Ala Gly Asp  
 35 40 45

Gly His Arg Ala Leu Ser Phe Phe Gln Gln Lys Gly Leu Arg Asp Phe  
 50 55 60

Asp Thr Leu Leu Leu Ser Asp Asp Gly Asn Thr Leu Tyr Val Gly Ala  
 65 70 75 80

Arg Glu Thr Val Leu Ala Leu Asn Ile Gln Asn Pro Gly Ile Pro Arg  
 85 90 95

Leu Lys Asn Met Ile Pro Trp Pro Ala Ser Glu Arg Lys Lys Thr Glu  
 100 105 110

Cys Ala Phe Lys Lys Lys Ser Asn Glu Thr Gln Cys Phe Asn Phe Ile  
 115 120 125

Arg Val Leu Val Ser Tyr Asn Ala Thr His Leu Tyr Ala Cys Gly Thr  
 130 135 140

Phe Ala Phe Ser Pro Ala Cys Thr Phe Ile Glu Leu Gln Asp Ser Leu  
 145 150 155 160

Leu Leu Pro Ile Leu Ile Asp Lys Val Met Asp Gly Lys Gly Gln Ser  
 165 170 175

Pro Leu Thr Leu Phe Thr Ser Thr Gln Ala Val Leu Val Asp Gly Met  
 180 185 190

Leu Tyr Ser Gly Thr Met Asn Asn Phe Leu Gly Ser Glu Pro Ile Leu  
 195 200 205

Met Arg Thr Leu Gly Ser His Pro Val Leu Lys Thr Asp Ile Phe Leu

210		215		220
Arg Trp Leu His Ala Asp	Ala Ser Phe Val Ala Ala Ile Pro Ser Thr			
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Gln Val Val Tyr Phe Phe Phe Glu Glu Thr Ala Ser Glu Phe Asp Phe				
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Phe Glu Glu Leu Tyr Ile Ser Arg Val Ala Gln Val Cys Lys Asn Asp				
	260	265	270	
Val Gly Gly Glu Lys Leu Leu Gln Lys Lys Trp Thr Thr Phe Leu Lys				
	275	280	285	
Ala Gln Leu Leu Cys Ala Gln Pro Gly Gln Leu Pro Phe Asn Ile Ile				
	290	295	300	
Arg His Ala Val Leu Leu Pro Ala Asp Ser Pro Ser Val Ser Arg Ile				
305	310	315	320	
Tyr Ala Val Phe Thr Ser Gln Trp Gln Val Gly Gly Thr Arg Ser Ser				
	325	330	335	
Ala Val Cys Ala Phe Ser Leu Thr Asp Ile Glu Arg Val Phe Lys Gly				
	340	345	350	
Lys Tyr Lys Glu Leu Asn Lys Glu Thr Ser Arg Trp Thr Thr Tyr Arg				
	355	360	365	
Gly Ser Glu Val Ser Pro Arg Pro Gly Ser Cys Ser Met Gly Pro Ser				
	370	375	380	
Ser Asp Lys Ala Leu Thr Phe Met Lys Asp His Phe Leu Met Asp Glu				
385	390	395	400	
His Val Val Gly Thr Pro Leu Leu Val Lys Ser Gly Val Glu Tyr Thr				
	405	410	415	
Arg Leu Ala Val Glu Ser Ala Arg Gly Leu Asp Gly Ser Ser His Val				
	420	425	430	
Val Met Tyr Leu Gly Thr Ser Thr Gly Pro Leu His Lys Ala Val Val				
	435	440	445	
Pro Gln Asp Ser Ser Ala Tyr Leu Val Glu Glu Ile Gln Leu Ser Pro				
	450	455	460	
Asp Ser Glu Pro Val Arg Asn Leu Gln Leu Ala Pro Ala Gln Gly Ala				

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Cys Ser Val Tyr Glu Ser Cys Val Asp Cys Val Leu Ala Arg Asp Pro						
		500		505		510
His Cys Ala Trp Asp Pro Glu Ser Arg Leu Cys Ser Leu Leu Ser Gly						
		515		520		525
Ser Thr Lys Pro Trp Lys Gln Asp Met Glu Arg Gly Asn Pro Glu Trp						
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Val Cys Thr Arg Gly Pro Met Ala Arg Ser Pro Arg Arg Gln Ser Pro						
		545		550		555
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Pro Gln Leu Ile Lys Glu Val Leu Thr Val Pro Asn Ser Ile Leu Glu						
		565		570		575
Leu Arg Cys Pro His Leu Ser Ala Leu Ala Ser Tyr His Trp Ser His						
		580		585		590
Gly Arg Ala Lys Ile Ser Glu Ala Ser Ala Thr Val Tyr Asn Gly Ser						
		595		600		605
Leu Leu Leu Leu Pro Gln Asp Gly Val Gly Gly Leu Tyr Gln Cys Val						
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Ala Thr Glu Asn Gly Tyr Ser Tyr Pro Val Val Ser Tyr Trp Val Asp						
		625		630		635
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Ser Gln Asp Gln Pro Leu Ala Leu Asp Pro Glu Leu Ala Gly Val Pro						
		645		650		655
Arg Glu Arg Val Gln Val Pro Leu Thr Arg Val Gly Gly Gly Ala Ser						
		660		665		670
Met Ala Ala Gln Arg Ser Tyr Trp Pro His Phe Leu Ile Val Thr Val						
		675		680		685
Leu Leu Ala Ile Val Leu Leu Gly Val Leu Thr Leu Leu Leu Ala Ser						
		690		695		700
Pro Leu Gly Ala Leu Arg Ala Arg Gly Lys Val Gln Gly Cys Gly Met						
		705		710		715
						720
Leu Pro Pro Arg Glu Lys Ala Pro Leu Ser Arg Asp Gln His Leu Gln						

725

730

735

Pro Ser Lys Asp His Arg Thr Ser Ala Ser Asp Val Asp Ala Asp Asn  
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Asn His Leu Gly Ala Glu Val Ala  
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&lt;210&gt; 77

&lt;211&gt; 3046

&lt;212&gt; DNA

&lt;213&gt; Mus sp.

&lt;400&gt; 77

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<210> 78

<211> 1436

<212> PRT

<213> Bos sp.

<400> 78

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Gly Val His Arg Cys Glu Gly Arg Val Glu Val Lys His Gln Gly Glu  
 35 40 45

Trp Gly Thr Val Asp Gly Tyr Arg Trp Thr Leu Lys Asp Ala Ser Val  
 50 55 60

Val Cys Arg Gln Leu Gly Cys Gly Ala Ala Ile Gly Phe Pro Gly Gly  
 65 70 75 80

Ala Tyr Phe Gly Pro Gly Leu Gly Pro Ile Trp Leu Leu Tyr Thr Ser  
 85 90 95

Cys Glu Gly Thr Glu Ser Thr Val Ser Asp Cys Glu His Ser Asn Ile  
 100 105 110

Lys Asp Tyr Arg Asn Asp Gly Tyr Asn His Gly Arg Asp Ala Gly Val  
 115 120 125

Val	Cys	Ser	Gly	Phe	Val	Arg	Leu	Ala	Gly	Gly	Asp	Gly	Pro	Cys	Ser	130	135	140	
Gly	Arg	Val	Glu	Val	His	Ser	Gly	Glu	Ala	Trp	Ile	Pro	Val	Ser	Asp	145	150	155	160
Gly	Asn	Phe	Thr	Leu	Ala	Thr	Ala	Gln	Ile	Ile	Cys	Ala	Glu	Leu	Gly	165	170	175	
Cys	Gly	Lys	Ala	Val	Ser	Val	Leu	Gly	His	Glu	Leu	Phe	Arg	Glu	Ser	180	185	190	
Ser	Ala	Gln	Val	Trp	Ala	Glu	Glu	Phe	Arg	Cys	Glu	Gly	Glu	Glu	Pro	195	200	205	
Glu	Leu	Trp	Val	Cys	Pro	Arg	Val	Pro	Cys	Pro	Gly	Gly	Thr	Cys	His	210	215	220	
His	Ser	Gly	Ser	Ala	Gln	Val	Val	Cys	Ser	Ala	Tyr	Ser	Glu	Val	Arg	225	230	235	240
Leu	Met	Thr	Asn	Gly	Ser	Ser	Gln	Cys	Glu	Gly	Gln	Val	Glu	Met	Asn	245	250	255	
Ile	Ser	Gly	Gln	Trp	Arg	Ala	Leu	Cys	Ala	Ser	His	Trp	Ser	Leu	Ala	260	265	270	
Asn	Ala	Asn	Val	Ile	Cys	Arg	Gln	Leu	Gly	Cys	Gly	Val	Ala	Ile	Ser	275	280	285	
Thr	Pro	Gly	Gly	Pro	His	Leu	Val	Glu	Glu	Gly	Asp	Gln	Ile	Leu	Thr	290	295	300	
Ala	Arg	Phe	His	Cys	Ser	Gly	Ala	Glu	Ser	Phe	Leu	Trp	Ser	Cys	Pro	305	310	315	320
Val	Thr	Ala	Leu	Gly	Gly	Pro	Asp	Cys	Ser	His	Gly	Asn	Thr	Ala	Ser	325	330	335	
Val	Ile	Cys	Ser	Gly	Asn	Gln	Ile	Gln	Val	Leu	Pro	Gln	Cys	Asn	Asp	340	345	350	
Ser	Val	Ser	Gln	Pro	Thr	Gly	Ser	Ala	Ala	Ser	Glu	Asp	Ser	Ala	Pro	355	360	365	
Tyr	Cys	Ser	Asp	Ser	Arg	Gln	Leu	Arg	Leu	Val	Asp	Gly	Gly	Gly	Pro	370	375	380	

Cys Ala Gly Arg Val Glu Ile Leu Asp Gln Gly Ser Trp Gly Thr Ile  
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Cys Asp Asp Gly Trp Asp Leu Asp Asp Ala Arg Val Val Cys Arg Gln  
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Leu Gly Cys Gly Glu Ala Leu Asn Ala Thr Gly Ser Ala His Phe Gly  
420 425 430

Ala Gly Ser Gly Pro Ile Trp Leu Asp Asn Leu Asn Cys Thr Gly Lys  
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Glu Ser His Val Trp Arg Cys Pro Ser Arg Gly Trp Gly Gln His Asn  
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Cys Arg His Lys Gln Asp Ala Gly Val Ile Cys Ser Glu Phe Leu Ala  
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Leu Arg Met Val Ser Glu Asp Gln Gln Cys Ala Gly Trp Leu Glu Val  
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Phe Tyr Asn Gly Thr Trp Gly Ser Val Cys Arg Asn Pro Met Glu Asp  
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Ile Thr Val Ser Thr Ile Cys Arg Gln Leu Gly Cys Gly Asp Ser Gly  
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Thr Leu Asn Ser Ser Val Ala Leu Arg Glu Gly Phe Arg Pro Gln Trp  
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Val Asp Arg Ile Gln Cys Arg Lys Thr Asp Thr Ser Leu Trp Gln Cys  
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Pro Ser Asp Pro Trp Asn Tyr Asn Ser Cys Ser Pro Lys Glu Glu Ala  
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Tyr Ile Trp Cys Ala Asp Ser Arg Gln Ile Arg Leu Val Asp Gly Gly  
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Thr Ile Cys Asp Asp Arg Trp Asp Leu Asp Asp Ala Arg Val Val Cys  
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Lys Gln Leu Gly Cys Gly Glu Ala Leu Asp Ala Thr Val Ser Ser Phe  
625 630 635 640



Phe	Gly	Thr	Gly	Ser	Gly	Pro	Ile	Trp	Leu	Asp	Glu	Val	Asn	Cys	Arg		
				645					650					655			
Gly	Glu	Glu	Ser	Gln	Val	Trp	Arg	Cys	Pro	Ser	Trp	Gly	Trp	Arg	Gln		
			660					665					670				
His	Asn	Cys	Asn	His	Gln	Glu	Asp	Ala	Gly	Val	Ile	Cys	Ser	Gly	Phe		
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Val	Arg	Leu	Ala	Gly	Gly	Asp	Gly	Pro	Cys	Ser	Gly	Arg	Val	Glu	Val		
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Pro	Thr	Ala	Gln	Val	Ile	Cys	Ala	Glu	Leu	Gly	Cys	Gly	Lys	Ala	Val		
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Ser	Val	Leu	Gly	His	Met	Pro	Phe	Arg	Glu	Ser	Asp	Gly	Gln	Val	Trp		
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Ala	Glu	Glu	Phe	Arg	Cys	Asp	Gly	Gly	Glu	Pro	Glu	Leu	Trp	Ser	Cys		
	755						760					765					
Pro	Arg	Val	Pro	Cys	Pro	Gly	Gly	Thr	Cys	Leu	His	Ser	Gly	Ala	Ala		
	770					775					780						
Gln	Val	Val	Cys	Ser	Val	Tyr	Thr	Glu	Val	Gln	Leu	Met	Lys	Asn	Gly		
785				790						795					800		
Thr	Ser	Gln	Cys	Glu	Gly	Gln	Val	Glu	Met	Lys	Ile	Ser	Gly	Arg	Trp		
			805						810					815			
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Cys	Arg	Gln	Leu	Gly	Cys	Gly	Val	Ala	Ile	Ser	Thr	Pro	Arg	Gly	Pro		
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Ala Leu Asn Ala Thr Gly Ser Ala His Phe Gly Ala Gly Ser Gly Pro  
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